Teddington Direct River Abstraction
EIA Scoping Report
Appendix E HRA Screening

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This document has been produced to support Thames Water's request for an Environmental Impact Assessment (EIA) Scoping Opinion under Regulation 10 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended) for the London Water Recycling Teddington Direct River Abstraction. The information presented in this document includes material or data which is still in the course of completion, pending consultation, engagement, further design development and technical assessment as part of the ongoing EIA.

Contents

List of Figures

List of Tables

0 Executive Summary

0.1.1 The Teddington Direct River Abstraction (DRA) (hereafter known as Teddington DRA or the Project) has been identified as the preferred option in the Water Resources Management Plan 2024 (WRMP24). The Teddington DRA would comprise a new abstraction site on the River Thames close to Teddington Weir, allowing for abstractions during low flow conditions, thereby providing additional resilience during drought conditions. The Project will help Thames Water achieve resilience to a 1:200-year drought event.

0.1.2 Abstracted water would be transferred into the Thames-Lee Tunnel for conveyance to Thames Water's Lee Valley reservoirs in North London. The operational rate of the intake, when active, is up to 75Ml/d. The intake is not anticipated to be constantly operational. It will most likely operate during low flow periods only to maintain essential water supply to Thames Water customers during times of water stress. When in operation, the modelling undertaken to date has indicated that the Project would typically be used in August through to November. Wastewater from the Mogden Sewage Treatment Works would be treated to a high standard at a new tertiary treatment plant (TTP), which would include the following water quality treatment processes as detailed in Chapter 2 of Environmental Impact Assessment Scoping Report: Ferric sulphate dosing, a moving bed biofilm reactor, Mechanical Cloth Filters and associated backwash and desludging equipment for filter units, proposed within the existing Mogden STW site boundaries and transferred via a new underground tunnel to a point close to and downstream of the abstraction site to compensate for water abstracted from the River Thames. The discharge of recycled water would be at a rate of up to 75Ml/d when the intake is operational. During non-drought periods, the TTP would operate at a maximum flow of 15Ml/d to maintain biomass in the moving bed biofilm reactor with discharge at the current Mogden STW outfall to the Thames Tideway.

0.1.3 The Habitatats Directive is an European Union Directive which was transposed into law in England and Wales by the Conservation of Habitats and Species Regulations 2017, commonly referred to as the Habitats Regulations. The Habitats Regulations have become retained EU law following the UK's departure from the EU, and they continue to refer to the Habitats Directive. The Habitats Regulations aim to protect European Sites and European Marine Sites which include Special Areas of Conservation, Special Protection Areas, potential Special Areas of Conservation and potential Special Protection Areas. The UK Government also expects Ramsar sites to be considered alongside European sites. Ramsar Sites support internationally important wetland habitats and are listed under the Convention on Wetlands of International Importance, especially as Waterfowl Habitat (Ramsar Convention, 1971). Collectively European Sites and Ramsar Sites are referred to as Habitats Sites.

0.1.4 Habitats Regulations Assessment follows a four stage stepwise process, this assessment report presents Stage 1: Screening. The purpose of this report is to present the necessary information for the competent authority (Secretary of State) to determine whether the Project could result in Likely Significant Effects on any Habitats Site. Likely Significant Effects are any effect that could undermine the conservation objectives for any Habitats Site.

0.1.5 This assessment complies with the Nationally Significant Infrastructure Projects: Advice on Habitats Regulations Assessments. Given the Project is a drought resilience scheme that comprises an infrastructure Project for the distribution of public water supply, it is assumed that the asset Project will be operated, within its operational parameters, indefinitely. It is, therefore, proposed to scope decommissioning out of the assessment.

0.1.6 This assessment considers the following:

- Which Habitats Sites could be affected by the Project during the construction and operation phases
- Zones of Influence where an effect would be expected to occur
- The potential effects to Habitats Sites that could arise from the Project
- Identification of whether any effect arising from the Project alone would be defined as a Likely Significant Effect
- A review of other projects and plans that could interact with the Project to generate an in-combination Likely Significant Effect
- Which Habitats Sites are Screened in to Stage 2 of the Habitats Regulations Assessment process.
- Which Habitats Sites are Screened out of further assessment as there is no Likely Significant Effect

0.1.7 The initial review of Habitats Site identified eight Habitats Sites that could potentially be affected by the Project:

- Richmond Park Special Area of Conservation (UK0030246)
- Wimbledon Common Special Area of Conservation (UK0030301)
- South West London Waterbodies Special Protection Area (UK9012171)
- South West London Waterbodies Ramsar (UK11065)
- Thames Estuary and Marshes Special Protection Area (UK9012021)
- Thames Estuary and Marshes Ramsar (UK11069)
- Lee Valley Special Protection Area (UK9012111)
- Lee Valley Ramsar (UK11034)

0.1.8 The initial assessment also identified one bat site; Mole Gap to Reigate Escarpment Special Area of Conservation (UK0012804) but the Project is located outside of the published zone of influence for this Habitats Site and therefore it was discounted from the assessment process at an early stage.

0.1.9 This Habitats Regulations Assessment Stage 1: Screening assessment has identified that there could be a Likely Significant Effect to Richmond Park Special Area of Conservation therefore it is screened in to Stage 2: Appropriate Assessment. Likely Significant Effects are identified to Stag Beetle resulting from the potential for direct mortality, loss of functionally linked land, air quality and visual disturbance only.

0.1.10 There will be no Likely Significant Effect either alone or in-combination with other projects and plans to the following Habitats Sites and therefore these are Screened out of Stage 2: Appropriate Assessment:

- Wimbledon Common Special Area of Conservation (UK0030301)
- South West London Waterbodies Special Protection Area (UK9012171)
- South West London Waterbodies Ramsar (UK11065)
- Thames Estuary and Marshes Special Protection Area (UK9012021)
- Thames Estuary and Marshes Ramsar (UK11069)
- Lee Valley Special Protection Area (UK9012111)
- Lee Valley Ramsar (UK11034)

E. HRA Screening

E.1. Introduction

Background

E.1.1 Thames Water Utilities Ltd (hereafter referred to as Thames Water or the 'Applicant') is seeking an Environmental Impact Assessment (EIA) Scoping Opinion under the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (hereafter referred to as the 'EIA Regulations') for the proposed Teddington Direct River Abstraction (DRA), the 'Project'. A schematic of the Project is shown in Figure E.1.

Purpose of the Report

E.1.2 The purpose of this document, referred to as 'Habitats Regulations Assessment (HRA): Stage 1 Screening' is to present the necessary information for the competent authority (Secretary of State) to identify whether the Project could result in Likely Significant Effects on any Habitats Sites' conservation objectives (either alone or in-combination with other projects and plans) in accordance with the Conservation of Habitats and Species Regulations 2017 (as amended).

E.1.3 This HRA Screening Report presents the screening stage completed using currently available information and will be reviewed by Natural England and other stakeholders. Comments received from stakeholders will be considered in the Stage 2 Appropriate Assessment report, which will be submitted with the application for development consent.

E.1.4 A separate report titled 'Information to inform an HRA' will be submitted with the development consent order (DCO) application for the Project (containing both the Stage 1 Screening and Stage 2 Appropriate Assessment). The formal HRA and integrity test will be undertaken by the competent authority using the information presented.

E.1.5 For ease of reference throughout the HRA process, relevant designations will be collectively referred to as "Habitats Sites" despite Ramsar designations being made at the international level. These Habitats Sites are underpinned by Sites of Special Scientific Interest (SSSI), which are designated under the Wildlife and Countryside Act (1981) (WCA).

Requirements for HRA

E.1.6 The requirement for an HRA is established through Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora, hereby referred to as the 'Habitats Directive', in Articles 6(3) and 6(4). The Habitats Directive was transposed into national legislation by the

Conservation of Habitats and Species Regulations 2017 (as amended)1, commonly referred to as the Habitats Regulations. The Habitats Regulations have become retained EU law following the UK's departure from the EU, and they continue to refer to the Habitats Directive.

E.1.7 Regulations 63 and 64 transposed the provisions of Articles 6(3) and 6(4) of the Habitats Directive as they relate to plans or projects in England and Wales.

E.1.8 Regulation 63 states that if a plan or project "(a) is likely to have a significant effect on a European site2 or a European offshore marine site[3] (either alone or in-combination with other plans or projects); and (b) is not directly connected with or necessary to the management of the site" then the competent authority must "…make an appropriate assessment of the implications for the site in view of that site's conservation objectives" before giving consent or authorisation. The plan or Project can only be granted consent if it can be concluded (following an 'appropriate assessment') that it "…will not adversely affect the integrity" of a Habitats Site unless the provisions of Regulation 64 are met. Post-Brexit European Sites in the UK are now referred to as Habitats Sites in line with the National Planning Policy Framework 2019 and The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. Habitats Sites are defined as any site which would be included within the definition of a European Site or European Marine Sites under regulation 8 of the Conservation of Habitats and Species Regulations 2017 (as amended) for the purpose of those regulations, including candidate Special Areas of Conservation, Sites of Community Importance, Special Areas of Conservation, Special Protection Areas and any relevant Marine Sites as set out in the "National Policy Statement for Water Resource Infrastructure"[4].

E.1.9 This assessment process is known as HRA. An HRA determines whether there will be any likely significant effect (LSE) on any Habitats Sites as a result of a project's implementation (either on its own or 'in-combination' with other plans or projects) and, if so, whether there will be any 'adverse effects on site integrity'.

Consultation

E.1.10 The Statutory Nature Conservation Body (SNCB) for the Project is Natural England. As part of the ongoing development of the Project through the Regulators' Alliance for Progressing Infrastructure Development (RAPID) Gated process, meetings have been held with Natural England to discuss the proposed approach to screening and the outcomes, as detailed in Table E.1.

Table E.1 Consultation held prior to Stage 1 Screening with Natural England

Date	Consultation mechanism	Issues examined
4 May 2022	RAPID Gated process – Gate 2	Summarised approach to be taken to Gate 2 informal HRA
18 January 2024	RAPID Gated process – Gate 3	Overview of Project and screening outcomes
16 May 2024	RAPID Gated process – Gate 3	Update on Project design changes and screening

E.1.11 Engagement with Natural England will continue through the stakeholder consultation and engagement programme, which will include seeking feedback on HRA screening and subsequent HRA stages.

Structure of the Report

E.1.12 The report is divided into the following sections:

- Section 1: This introduction
- Section 2: Provides an overview of the Project
- Section 3: Provides the methodology adopted for the Stage 1 Screening
- Section 4: Provides the results of the Stage 1 Screening of the Project
- Section 5: Outlines the Screening statement

E.2. The Project

E.2.1 The Project is a water resources stress and drought resilience scheme that would provide additional water capacity to London during certain conditions. The Project would operate intermittently and would only supply up to the maximum 75Ml/d when required. Modelling scenarios have indicated that the Project would typically operate during low or moderate low flow periods in the River Thames and on average once in every two years, primarily between the months of August to November.

E.2.2 The Project involves a new abstraction site on the River Thames close to Teddington Weir. The abstracted water would be transferred to Lockwood Pumping Station, part of Thames Water's Lee Valley reservoirs in North London, and replaced by recycled water from the new tertiary treatment plant (TTP) within the existing Mogden sewage treatment works (STW). The Project comprises the following principal components:

- Tertiary treatment facilities to recycle a portion of the final effluent at Mogden sewage treatment works (STW) within a new tertiary treatment plant (TTP) with an output of up to 75Ml/d of recycled water

- A tunnel conveyance route at 3.5m internal diameter (ID) for the transfer of 75Ml/d of recycled water between the TTP and the outfall discharge infrastructure
- A tunnel boring drive shaft and recycled water interception shaft at Mogden STW
- An intermediate construction shaft
- A tunnelled conveyance route reception shaft and connecting conveyance route to the outfall discharge located on land to the south of Burnell Avenue
- A new outfall for the discharge up of 75Ml/d recycled water located adjacent to and within the southern riverbank of the River Thames close to Teddington Weir
- A new abstraction intake with an abstraction rate of up to 75Ml/d of river water from the River Thames, located adjacent to and within the riverbank of the River Thames upstream of the new outfall discharge
- An abstraction connection shaft and 1.8m ID river water conveyance route connecting to the existing Thames Lee Tunnel (TLT) via a new TLT connection shaft

E.2.3 Final effluent from Mogden STW would be subject to further treatment at a new TTP at Mogden STW. The recycled water would be transferred in a new approximately 4km tunnel for discharge into the freshwater River Thames at a new outfall upstream of the tidal limit at Teddington Weir. Additional abstraction for public water supply would be through a new intake from the freshwater River Thames upstream of the new outfall. This allows abstracted water to be transferred into the nearby TLT for conveyance to Lockwood Pumping Station, part of Thames Water's Lee Valley reservoirs in North London. The operational rate of the Project, when active, is up to 75Ml/d. A schematic of the Project components is shown in Figure E.1. A full description of the Project is provided in Chapter 2 of the EIA Scoping Report. This sets out timescales for construction as well as proposed operation and maintenance. The current plan is for the Project to operate indefinitely; therefore, decommissioning has been screened out of this HRA and is not discussed further.

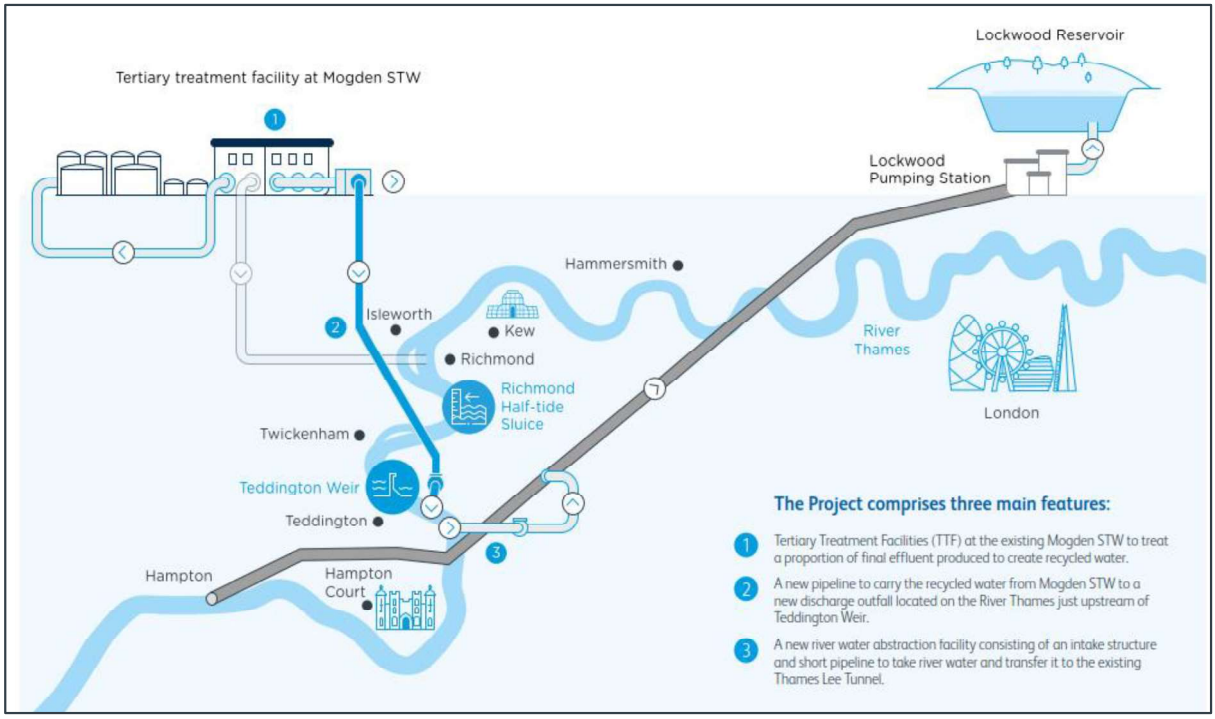

Figure E.1 Schematic of the Teddington Direct River Abstraction

E.3. Methodology

Introduction

E.3.1 An HRA determines whether there will be any LSE on any Habitats Site as a result of a project (either on its own or 'in-combination' with other plans or projects) and, if so, whether there will be any 'adverse effects on site integrity'.

E.3.2 The guidance recognises four key steps in the HRA process as follows:

- Stage 1 Screening – the identification of whether a plan or Project will cause any LSE on a Habitats Site in view of their conservation objectives, either alone or in combination with other plans or projects. The test is a trigger for further assessment, and therefore the bar is set low i.e., is there a risk or possibility of an adverse effect, or where adverse effects cannot be ruled out due to lack of information. At this stage, mitigation measures are not taken into account, in accordance with the People over Wind (Court of Justice of the European Union (ECJ) Case C-323/17); this reinforces the idea of screening as a 'low bar' and makes 'appropriate assessments' more common.
- Stage 2 Appropriate Assessment and the integrity test – Where an LSE from a project or plan alone or in combination with other plans or projects is expected (or cannot be ruled out), Stage 2 is required. This involves closer examination of the Project or plan and screened in Habitats Sites to ascertain whether the project or plan will adversely affect the integrity

of the Habitats Site. Those sites will require further assessment to determine whether these LSE will adversely affect the integrity of the Habitats Sites and its qualifying features in view of its conservation objectives. The scope of such assessments is not set, and some may not be particularly detailed, especially where standard mitigation measures are available which are known to be effective. During Stage 2, measures to avoid, minimise and mitigate the effects will be identified and their likely impact assessed. The level of assessment must be sufficient to ensure that there is no reasonable scientific doubt that adverse effects on site integrity will not occur.

- Stage 3 Alternative Solutions – where adverse effects on the integrity of a Habitats Site remain after the inclusion of mitigation in Stage 2 (or where there is uncertainty in this regard), it must be considered whether there are alternative solutions that meet the plan objectives and which would not result in an adverse effect on the integrity of a Habitats Site. A plan or Project which has adverse effects on the integrity of a Habitats Site cannot be permitted if feasible alternative solutions are available. If no alternative solutions are available, consideration must be given to whether the criteria for imperative reasons of overriding public interest are met (IROPI, see Stage 4).
- Stage 4 Imperative Reasons of Overriding Public Interest (IROPI) – where there are no feasible alternatives that meet the project or plan objectives and would not result in an adverse effect on the integrity of a Habitats Site, and the IROPI criteria are met, compensatory measures must be developed and secured.

E.3.3 The stages, as described above, are used to ensure compliance with the Habitats Regulations and so principally reflect the stepwise legislative tests applicable to the Project.

Guidance

E.3.4 The HRA Stage 1 Screening has been undertaken in accordance with the key guidance document Nationally Significant Infrastructure Projects: Advice on Habitats Regulations Assessments relevant to nationally significant infrastructure projects (online).

E.3.5 Other relevant guidance and case-practice has been considered, as detailed below:

- Defra (2021). Policy paper: Changes to the Habitats Regulations 2017 [online]
- UK Government (2019). Appropriate assessment: Guidance on the use of HRA [online]

- Natural England (2020). Guidance on how to use Natural England's Conservation Advice Packages in Environmental Assessments. Natural England, Peterborough
- European Commission (2018). Managing Natura 2000 sites - The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC. European Union, 1-86
- Defra (2012). The Habitats and Wild Birds Directives in England and its seas: Core guidance for developers, regulators and land/marine managers [online]
- Scottish Natural Heritage (SNH) (2019). SNH Guidance Note: The handling of mitigation in Habitats Regulations Appraisal – the People Over Wind CJEU judgement [online]

Approach to HRA Stage 1 Screening

E.3.6 The objective of screening is to establish firstly whether the Project is likely to have a significant effect on any Habitats Sites (either alone or in-combination with other plans and projects).

E.3.7 The assessment has considered whether any LSEs are arising from construction and operation of the Project (either alone or in-combination with other plans or projects) on one or more Habitats Sites.

E.3.8 Habitats Sites covered by the Habitats Regulations include:

- Special Protection Areas (SPAs) which are classified under the European Council Directive 'on the conservation of wild birds' (2009/147/EC; 'Birds Directive') for the protection of wild birds and their habitats (including particularly rare and vulnerable species listed in Annex 1 of the Birds Directive, and migratory species)
- Special Areas of Conservation (SACs), which are designated under the Habitats Directive (92/43/EEC) and target particular habitats (Annex 1) and species (Annex II) identified as being of European importance. The Government also expects, as a matter of policy, that HRA be applied to potential SPAs (pSPAs), possible/proposed SACs (pSACs), compensation habitat and Ramsar sites
- Ramsar sites support internationally important wetland habitats and are listed under the Convention on Wetlands of International Importance, especially as Waterfowl Habitat (Ramsar Convention, 1971)

E.3.9 For ease of reference throughout the HRA process, these designations will be collectively referred to as "Habitats Sites" despite Ramsar designations being made at the international level. These Habitats Sites are underpinned by SSSI, which are designated under the WCA.

E.3.10 The purpose of the screening stage is to determine whether any part of the Project is likely to have a significant effect on any Habitats Sites (including areas of compensation habitat, areas of functional land, and the ability for

abstractions to occur for the management of designated wetland sites). This is judged in terms of the implications of the Project for a Habitats Site's conservation objectives, which relate to its 'qualifying features' (i.e. those Annex I habitats, Annex II species, and Annex I bird populations for which it has been designated , and Ramsar criterion). Significantly, HRA is based on a rigorous application of the precautionary principle. Where uncertainty or doubt remains, an impact should be assumed, triggering the requirement for Appropriate Assessment of that Project.

E.3.11 The screening stage also has to conclude whether any in-combination effects could result from the implementation of the Project in-combination with other plans and projects and whether these could adversely affect the integrity of a Habitats Site.

Identifying Habitats sites

E.3.12 The initial list of Habitats Sites for screening has been derived by adopting a distance-based threshold of 10km from the Project EIA Scoping Boundary plus exceptional, longer impact pathways. The use of a '10km threshold plus exceptional pathways' approach is based on the precedent set for previous HRAs of projects/plans through consultation with statutory consultees and the Impact Risk Zone (IRZ) mapping provided by Natural England for screening of impacts to designated sites in England. Following The Habitats Regulation Assessment Handbook, most significant effects on qualifying species and habitats occur within a maximum 10km radius of the source of impact unless there are exceptional pathways such as major downstream or coastal dispersion effects or larger foraging and dispersal distances for mobile species (e.g., birds, bats, migratory fish). A 30km threshold has been used to identify any sites with bat species or migratory fish as a qualifying feature.

E.3.13 The qualifying habitats and species of Habitats Sites are vulnerable to a wide range of impacts such as physical loss or damage of habitat, disturbance from noise, light, human presence, changes in hydrology (e.g. changes in water levels/flow, flooding), changes in water temperature, changes in water or air quality and biological disturbance (e.g. direct mortality, introduction of disease or non-native species). The assessment has considered the construction and operation phases effects. The current plan is for the Project to operate indefinitely; therefore decommissioning has been screened out of this HRA and is not discussed further.

E.3.14 In determining the likelihood of significant effects on Habitats Sites, particular consideration was given to the possible source-receptor pathways through which effects may be transmitted from activities associated with the Project, to features contributing to the integrity of the Habitats Sites (e.g. surface water catchments, air quality, etc.).

E.3.15 In addition, the HRA Stage 1 Screening has identified any habitat outside the designated site that also supports the qualifying species populations that use the Habitats Site in question. This off-site 'functionally linked land' (or waterbody) is particularly relevant to mobile qualifying species (e.g., birds, bats, invertebrates, fish, otters). The precautionary principle applies equally to functionally linked land, so where there is insufficient information to ascertain that there would be no LSE, an Appropriate Assessment will be required. However, this does not mean that every possible parcel of land within reach of the Habitats Site's qualifying populations must be considered. The 'Boggis' case establishes that there must be at least credible evidence that there could be a functional link between the location of the Project's effects and the Habitats Site.

Source Information

E.3.16 Data on the Habitats Sites and their qualifying features has been collected from the Joint Nature Conservation Committee (JNCC) and Natural England websites. These data include information on the attributes of the Habitats Sites that contribute to and define their integrity, current conservation status and the specific sensitivities of the site, notably the site boundaries and the boundaries of the Habitats Sites; the conservation objectives; the condition, vulnerabilities and sensitivities of the sites and their qualifying features; the current pressures and threats for the sites; and the approximate locations of the qualifying features within each site (if reported); and designated or non-designated 'functional habitats' (if identified).

E.3.17 The following sources of published information were used:

- Site citations
- Site Register Entries
- Standard Data Form (SPA/SAC) or Information Sheet (Ramsar site)
- Conservation Objectives and Supplementary Advice on Conservation Objectives (for SPAs/SACs)
- Site Improvement Plans (SIPs)
- Regulation 33 information for European Marine Sites or Conservation Advice for Marine Protected Areas
- Environment Agency Review of Consents information
- SSSI Impact Risk Zones (in England), which apply equally to Habitats Sites
- Site condition assessment has been integrated with SSSI assessments through Common Standards Monitoring (CSM) and marine condition assessments (for SAC marine features only)
- Definitions of Favourable Conservation Status (where available for species/habitat)
- Favourable Condition Tables are set out for every SSSI that underpins a Habitats Site and can often be applicable to the Habitats Site's qualifying features
- Article 12 (SPA) and Article 17 (SAC) status reports

Thresholds

E.3.18 Where applicable, screening considered different types of impacts which can occur over different distances. The UKWIR guidance for plans, although equally applicable to projects, includes accepted 'zones of influence' for certain impacts, as set out in Table E.2. However, the best and latest information should always be used to inform an assessment. Assumptions regarding the sensitivities of Habitats Sites qualifying features include:

- Most breeding passerines will not be water-resource dependent
- For groundwater sources and groundwater-fed habitats, the Environment Agency consider that significant effects as a result of groundwater abstractions are unlikely on habitat sites over 5km from the abstraction
- Wide-ranging marine/marine dependent species associated with marine sites that are not directly connected to the hydrological zone of influence are not typically considered to be both sensitive and exposed to the effects of the Project (except in certain relatively unique circumstances, such as some desalination schemes)

E.3.19 Habitats Sites over 10km from the Project that are not hydrologically linked and do not support wide-ranging mobile species are considered sufficiently remote such that any environmental changes will be effectively nil, and so there will be 'no effects' on these sites (and so no possibility of 'in-combination' effects outside of this 10km distance).

Table E.2 Potential impacts of the Project

Broad categories of potential impacts on Habitats Sites, with examples	Examples of activities responsible for impacts
Physical loss: • Removal • Smothering	Development of infrastructure associated with the Project, e.g., new pipelines, transport infrastructure, temporary weirs. Indirect effects from a reduction in flows, e.g., drying out of water-margin habitat. Physical loss is likely to be significant where the boundary of the Project extends within or is directly adjacent to the boundary of the Habitats Site or within/adjacent to an offsite area of known foraging, roosting, breeding habitat (that supports species for which a Habitats Site is designated, or where natural processes link the Project to the site, such as through hydrological connectivity downstream, longshore drift

Broad categories of potential impacts on Habitats Sites, with examples	Examples of activities responsible for impacts
	along the coast, or the Project impacts the linking habitat).
Physical damage: • Sedimentation/silting • Prevention of natural processes • Habitat degradation • Erosion • Fragmentation • Severance/barrier effect • Edge effects	Construction activity leading to permanent or temporary damage of available habitat, sedimentation/siltation, fragmentation, etc. Physical damage is likely to be significant where the boundary of the Project extends within or is directly adjacent to the boundary of the Habitats Site or within/adjacent to an offsite area of known foraging, roosting, breeding habitat that supports species for which a Habitats Site is designated, or where natural processes link the Project to the site, such as through hydrological connectivity downstream of or sediment drift along the coast.
Non-physical disturbance: • Noise and vibration (including underwater) • Visual presence • Human presence • Light pollution	Noise from temporary construction or temporary pumping activities. Taking into consideration the noise level generated from general building activity (c. 122dB(A)) and considering the lowest noise level identified in appropriate guidance as likely to cause disturbance to estuarine bird species, it is concluded that noise impacts could be significant up to 1km from the boundary of the Habitats Site.5,6 Noise from operation of TTP, pumps and mechanical equipment at the intake and outfall sites, and vehicular traffic during operation. Noise from construction traffic is only likely to be significant where the transport route to and from the Project is within 3-5km of the boundary of the Habitats Site[7]. Plant and personnel involved in operation of the Project. These effects (noise, visual/human presence) are only likely to be significant

Broad categories of potential impacts on Habitats Sites, with examples	Examples of activities responsible for impacts
	where the boundary of the Project extends within or is adjacent to the boundary of the Habitats Site or within/adjacent to an offsite area of known foraging, roosting, breeding habitat (that supports species for which a Habitats Site is designated). Artificial lighting, e.g., for security around a temporary pumping station. Effects from light pollution8 are more likely to be significant where the boundary of the Project is within 500m of the boundary of the Habitats Site.
Water table/availability: • Drying • Flooding/stormwater • Changes to surface water levels and flows • Changes in groundwater levels and flows • Changes to coastal water movement	Changes to water levels and flows due to increased water abstraction, reduced storage or reduced flow releases from reservoirs to river systems. Potential for changes to habitat availability, for example, reductions in wetted width of rivers leading to desiccation of macrophyte beds. These effects are only likely to be significant where the boundary of the Project extends within the same ground or surface water catchment as the Habitats Site. However, these effects are dependent on hydrological continuity between the Project and the Habitats Site and sometimes whether the Project is up or downstream from the Habitats Site.
Toxic contamination: • Water pollution • Soil contamination • Air Pollution	Reduced dilution in downstream or receiving waterbodies due to changes in abstraction or reduced compensation flow releases to river systems. These effects are only likely to be significant where the boundary of the Project extends within the same ground or surface water catchment as the Habitats Site. However, these effects are dependent on hydrological continuity between the Project and the Habitats

Broad categories of potential impacts on Habitats Sites, with examples	Examples of activities responsible for impacts
	Site and sometimes whether the Project is up or downstream from the Habitats Site. Air emissions associated with plant and vehicular traffic during construction and operation phases. The effect of dust is only likely to be significant where the site is within or in close proximity to the boundary of the Habitats Site[9] [10]. Without mitigation, dust and dirt from the construction site may be transported onto the public road network and then deposited/spread by vehicles on roads up to 500m from large sites, 200m from medium sites, and 50m from small sites, as measured from the site exit. Effects of road traffic emissions from the transport route to be taken by the Project traffic are only likely to be significant where the Habitats Site falls within 200m of the edge of a road affected11.
Non-toxic contamination: • Nutrient enrichment (e.g., of soils and water) • Algal blooms • Changes in salinity • Changes in thermal regime • Changes in turbidity • Changes in sedimentation/silting	Changes to water salinity, nutrient levels, turbidity, thermal regime due to increased water abstraction, discharges, storage, or reduced compensation flow releases to river systems. These effects are only likely to be significant where the boundary of the Project extends within the same ground or surface water catchment as the Habitats Site. However, these effects are dependent on hydrological continuity between the Project and the Habitats Site and sometimes whether the Project is up or downstream from the Habitats Site.
Biological disturbance: • Direct mortality • Changes to habitat availability • Out-competition by non-native species	Killing or injury due to construction activity. Likely to be a risk where the boundary of the Project extends within or is directly adjacent to the boundary of the Habitats

Broad categories of potential impacts on Habitats Sites, with examples	Examples of activities responsible for impacts
• Selective extraction of species • Introduction of disease • Rapid population fluctuations • Natural succession	Site, or within/adjacent to an offsite area of known foraging, roosting, breeding habitat (that supports species for which a Habitats Site is designated). Entrapment during in-river or terrestrial construction works causing injury or mortality of mobile species. Likely to be a risk of entrapment, injury or mortality where the boundary of the Project extends within or is directly adjacent to the boundary of a Habitats Site or within/adjacent to offsite functionally linked habitat. Mobile species could include fish, southern damselfly and European otters, for example. Creation of new pathway for spread of non-native invasive species. This effect is only likely to be significant where the Project is situated within the Habitats Site or an upstream tributary of the Habitats Site, but also for inter-catchment water transfers.

Approach to Stage 2 Appropriate Assessment

E.3.20 The 'appropriate assessment' is an extension of the assessment processes undertaken at the screening stage, with LSE (or areas of uncertainty) examined to determine whether there will be any adverse effects on the integrity of any Habitats Sites, taking into account the site's conservation objectives.

E.3.21 Where an LSE has been identified at the screening stage (noting the precautionary principle), Information to Inform a Stage 2 Appropriate Assessment (IIAA) will be completed to provide the competent authority responsible for undertaking the Appropriate Assessment and integrity test with sufficient information to do so.

E.3.22 The IIAA will consider the potentially damaging aspects of the Project, both construction and operation and the LSE on the associated Habitats Site's qualifying features and achievement of the conservation objectives and characterise the impacts in terms of their likelihood, nature, scale, severity and duration.

E.3.23 The potential for adverse effects on the integrity of a Habitats Site depends on the scale and magnitude of the action and its predicted impacts, taking into account the distribution of the qualifying features across the site in relation to the predicted impact and the location, timing and duration of the proposed activity and the level of understanding of the effect, such as whether it has been recorded before and, based on current ecological knowledge, whether it can be expected to operate at the site in question.

E.3.24 The IIAA will set out the methodology for this stage of the assessment.

Review of Potential In-combination Effects

E.3.25 The HRA process requires that the effects of other projects, plans or programmes be considered for effects on Habitats Sites 'in-combination' with the Project. In accordance with guidance as set out in the Habitats Regulations Handbook (2013), the following approach will be adopted for the in-combination assessment across the Screening and Appropriate Assessment Stages:

- STEP 1 – Does the Project have no discernible effect whatsoever on the Habitats Site? If not, then there's no need for in-combination assessment, as logic dictates it can't have in-combination effects
- STEP 2 - Does the Project, alone, have an LSE on the Habitats Site? If so, then there's no need to consider in-combination assessment at the Screening Stage as consent cannot be given unless the HRA Stage 2 Appropriate Assessment is completed (and if necessary, 3 and 4 derogation tests are met)
- STEP 3 – Does the Project have a discernible effect on the Habitats Site, but one which is not 'significant' in the context of the Habitats Regulations (i.e. adverse effect on site integrity) alone? If so, then an in-combination assessment is required in respect of that Habitats Site at the screening stage, to determine whether the Habitats Site should be screened into the appropriate assessment on the basis of in-combination effects
- STEP 4 – Identify the other plans/projects that also have LSE or that (1) aren't an adverse effect alone but (2) might act in-combination with effects of your Project. It is normal practice to agree on this list of potential in-combination plans/projects with the Competent Authority before doing the assessment . The shortlist of plans/projects that may interact with the Project has been identified in Appendix G of the EIA scoping report
- STEP 5 – Assess these other plans/projects in-combination with this Project

Location of HRA information

E.3.26 Section 6 of Nationally Significant Infrastructure Projects: Advice on Habitats Regulations Assessments relevant to nationally significant infrastructure projects requires certain HRA information to be presented with the DCO application. Table E.3 provides where this information is provided in this report, which will be presented in the Information to Inform an HRA to be submitted with the application.

Table E.3 Advice Note 10 information requirements and location within this report

Reference to Section 6.1 of Advice Note 10	Location within this report
A summary table of all Habitats Sites and qualifying features and each pathway of effect considered at each HRA Stage (screening, AA/IROPI, and the derogations, as applicable), for each phase of the Project	Provided in section 4 of this report, as relevant to Stage 1 Screening.
A copy of the citation/Natura 2000 data sheet for each Habitats Site	Provided in Appendix A of this report.
A copy of the conservation objectives for all Habitats Sites for which LSE have not been excluded and have been carried forward to HRA Stage 2	Provided in section 4 of this report.
A plan of the Habitats Site(s) potentially affected in relation to the Project (as required to be submitted with the DCO application in accordance with Regulation 5(2)(l)(i) of the APFP Regulations)	Provided in section 4 of this report.
A statement which identifies (with reasons) whether significant effects are considered to be likely in respect of Habitats Sites in devolved administrations or within EEA States	Provided in section 5 of this report.
Evidence (such as Evidence Plans, copies of correspondence, agreement logs,) of agreement between the Applicant and relevant SNCBs (including those in devolved administrations and relevant bodies in EEA States, where applicable) on the scope, methodologies, interpretation, and conclusions of the screening assessment	A summary of consultation provided in Table E.3 of this report.

Reference to Section 6.1 of Advice Note 10	Location within this report
Cross references to relevant draft DCO requirements, development consent obligations and any other mechanisms proposed to secure measures relied upon in the Appropriate Assessment and derogation cases (as applicable), including the identification of any factors that might affect the certainty or efficacy of their implementation	To be provided in the Information to Inform an HRA to be submitted with the application, which will contain the Stage 2 Appropriate Assessment.

E.4. HRA Screening

Likely Significant Effects

E.4.1 The Project is associated with eight internationally designated sites. The Habitats Sites identified during the desk study are shown in Figure E.2 and are:

- Richmond Park SAC (UK0030246)
- Wimbledon Common SAC (UK0030301)
- South West London Waterbodies SPA (UK9012171)
- South West London Waterbodies Ramsar (UK11065)
- Thames Estuary and Marshes SPA (UK9012021)
- Thames Estuary and Marshes Ramsar (UK11069)
- Lee Valley SPA (UK9012111)
- Lee Valley Ramsar (UK11034)

E.4.2 The HRA screening matrices for the identified Habitats Sites are provided in Table E.4 to Table E.8.

E.4.3 One bat site is located within 30km of the Project; Mole Gap to Reigate Escarpment SAC (UK0012804) 16.7km southwest is designated for Bechstein's bat Myotis bechsteinii, with the site providing hibernation opportunities. Given that Bechstein's bat is a woodland species and there are significant areas of urban development between the SAC and the Project, including the M25, it is highly unlikely that the Bechstein's bat from the SAC will be present on the Project site. In addition, the Local Planning Authority guidance , identifies 800m buffer zones for this Habitats Site. Furthermore, this Habitats Site is not linked to any other SACs closer to the Project. Therefore, there will be no effect on this Habitats Site, and it is discounted from the assessment.

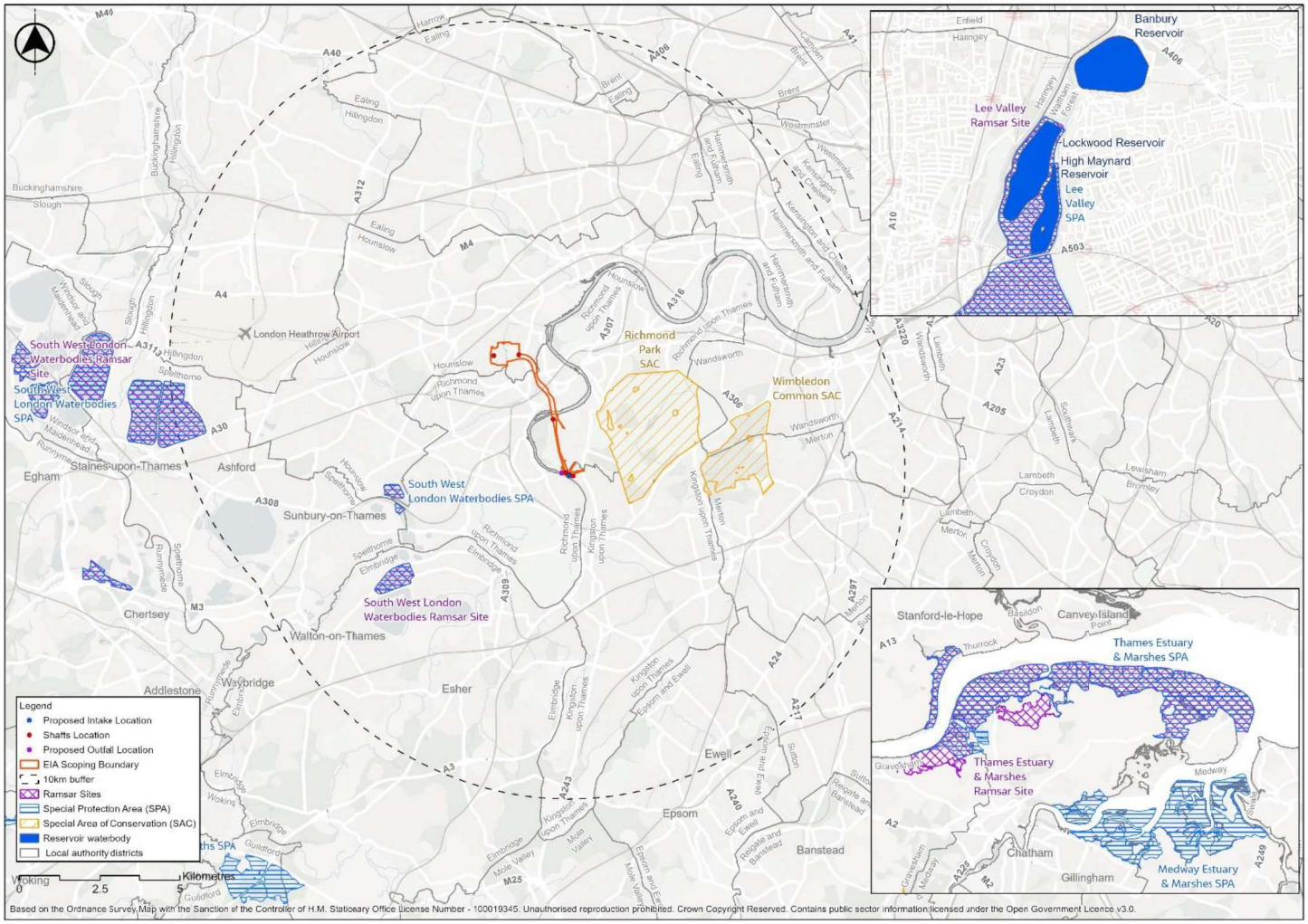

Figure E.2 Teddington Direct River Abstraction - Site location

Table E.4 Stage 1 Screening of Richmond Park SAC

Designated site name:	Richmond Park SAC (UK0030246)
Location and distance from site	TQ199728 1.3km east of site
Qualifying features:	1083 Stag beetle Lucanus cervus
Conservation objectives:	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features by maintaining or restoring; The extent and distribution of the habitats of qualifying species The structure and function of the habitats of qualifying species The supporting processes on which the habitats of qualifying species rely The populations of qualifying species The distribution of qualifying species within the site
SSSI Condition Assessment:	Richmond Park SSSI: Favourable= 38.46%, Unfavourable- recovering= 61.53% taken from latest condition assessment in March 2024[12] The closest units to the Project are units 13, 5 and 6.

Unit	Feature	Condition	Condition Threat Risk
001	Acid grassland - lowland	Favourable	Low
002	Broadleaved, mixed and yew woodland - lowland	Unfavourable - Recovering	Low
004	Acid grassland - lowland	Favourable	Low
005	Acid grassland - lowland	Favourable	Low
006	Broadleaved, mixed and yew woodland - lowland	Unfavourable - Recovering	Low

Designated site name:	Richmond Park SAC (UK0030246)			
	007	Broadleaved, mixed and yew woodland - lowland	Unfavourable - Recovering	Low
	009	Broadleaved, mixed and yew woodland - lowland	Unfavourable - Recovering	Low
	010	Acid grassland - lowland	Favourable	Low
	011	Broadleaved, mixed and yew woodland - lowland	Unfavourable - Recovering	Low
	012	Broadleaved, mixed and yew woodland - lowland	Unfavourable - Recovering	Low
	013	Acid grassland - lowland	Favourable	Low
	014	Broadleaved, mixed and yew woodland - lowland	Unfavourable - Recovering	Low
	015	Broadleaved, mixed and yew woodland - lowland	Unfavourable - Recovering	Low
Site Improvement Plan (SIP)	No current issues affecting the Natura 2000 feature(s) have been identified on this site. The Richmond Park Management Plan should continue to be periodically reviewed to ensure the continuing availability of decaying wood habitat			

Potential Effects		
Screening	Risk of Likely Significant Effects (LSEs) alone?	If no LSEs alone: residual low-level effect requiring in-combination assessment?
Construction – Direct mortality The Project is within 1.3km of the Richmond Park SAC and there is suitable connecting habitat. As such stag beetles will likely travel between the Project and the SAC. The Project also contains suitable egg laying habitat for stag beetle so both adults and larvae may be present within the construction areas of the Project. As such there is potential for the construction phase to cause direct mortality to stag beetle adults and larvae without mitigation.	Yes	N/A

Designated site name:	Richmond Park SAC (UK0030246)	
Construction – Loss of functionally linked habitat Suitable habitat for stag beetle was recorded around the proposed shafts south of the river Thames within the Ham Lands local nature reserve,[13] and this could be damaged or destroyed during the construction phase without appropriate mitigation.	Yes	N/A
Construction – Noise disturbance Stag beetles are not known to be particularly sensitive to noise disturbance and noise is not considered to have a likely significant impact on the qualifying feature.	No	No
Construction – Visual disturbance. Adult stag beetle are attracted to artificial lights used on site during construction. This can increase predation rates and could have a negative impact without mitigation	Yes	N/A
Construction – Air quality and dust emissions. The impacts of air pollution and dust emissions on stag beetle and their larvae are not well documented so likely significant effect cannot be ruled out in the absence of mitigation.	Yes	N/A
Operation – No impact pathways identified. The small areas of permanent infrastructure are unlikely to result in the loss of any functionally linked habitat with any relevant areas of dead wood being relocated during the construction phase. Shaft sites will result in a permanent area of land take 4m2 for a shaft access hatch.	No	No

Table E.5 Stage 1 Screening of Wimbledon Common SAC

<table>
<tr><td>Designated site name:</td><td>Wimbledon Common SAC (UK0030301)</td></tr>
<tr><td>Location and distance from site</td><td>TQ227719
5.0km east of site</td></tr>
<tr><td>Qualifying features:</td><td>H4010 Northern Atlantic wet heaths with Erica tetralix; Wet heathland with cross-leaved heath
H4030 European dry heaths
S1083 Stag beetle Lucanus cervus</td></tr>
<tr><td>Conservation objectives:</td><td>Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;
The extent and distribution of the habitats of qualifying species
The structure and function (including typical species) of qualifying natural habitats
The structure and function of the habitats of qualifying species
The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely
The populations of qualifying species
The distribution of qualifying species within the site</td></tr>
<tr><td>SSSI Condition assessment:</td><td>Wimbledon Common SSSI: Unfavourable – recovering = 80.00%, Unfavourable – no change = 20.00%.
<table>
<tr><th>Unit</th><th>Feature</th><th>Condition</th><th>Condition Threat Risk</th></tr>
<tr><td>001</td><td>Invert. assemblage A2 wood decay</td><td>Not Recorded</td><td>No Threat Condition identified</td></tr>
<tr><td>001</td><td>Dwarf Shrub Heath - Lowland</td><td>Unfavourable - Recovering</td><td>Medium</td></tr>
<tr><td>002</td><td>Acid Grassland – Lowland</td><td>Unfavourable - Recovering</td><td>Medium</td></tr>
<tr><td>006</td><td>Broadleaved, Mixed And Yew Woodland - Lowland</td><td>Unfavourable - Recovering</td><td>Medium</td></tr>
</table></td></tr>
</table>

Designated site name:	Wimbledon Common SAC (UK0030301)			
	008	Broadleaved, Mixed And Yew Woodland - Lowland	Unfavourable - Recovering	Medium
	009	Dwarf Shrub Heath - Lowland	Unfavourable - No change	No Threat Condition identified
Site Improvement Plan (SIP)	Public Access/Disturbance – Pressure - H4010 Wet heathland with cross-leaved heath, H4030 European dry heaths, S1083 Stag beetle – Implement measures to reduce visitor impact Habitat fragmentation – Threat – S1083 Stag beetle – Species recovery project Invasive species – Threat – H4010 Wet heathland with cross-leaved heath, H4030 European dry heaths, S1083 Stag beetle – Develop an invasives response plan Air Pollution: impact of atmospheric nitrogen deposition – Pressure - H4010 Wet heathland with cross-leaved heath, H4030 European dry heaths – Establish a site nitrogen action plan			
Potential Effects				
Screening assessment			Risk of Likely Significant Effects (LSEs) alone?	If no LSEs alone: residual low-level effect requiring in-combination assessment?
Construction – Direct mortality The Project is 5km from Wimbledon Common SAC which is over double the distance stag beetles will travel[14] so any Stag beetle impacted by the Project will be from a different population. Stag beetles impacted by the Project may be from the wider meta population as the Richmond Park SAC is functionally linked to Wimbledon Common SAC. This is not considered a likely significant effect on the qualifying feature of this Habitats Site but could result in a non-significant impact. A review of the short list of existing and approved development (Appendix G of the EIA Scoping Report) does not identify any construction activities located in habitat likely to support stag beetle within			No	Yes

Designated site name:	Wimbledon Common SAC (UK0030301)	
the 2km ZoI at the same time as the proposed construction dates for the Project, therefore there is no pathway for LSE in-combination.		
Construction – Loss of habitat As discussed above the distance between the site and the Project means any stag beetle habitat loss won't be affecting the population within Wimbledon Common SAC. No loss of heathland is anticipated by the works. As such no likely significant effect from habitat loss is anticipated on any of the qualifying features.	No	No
Construction – Noise disturbance Wimbledon Common SAC is approximately 5km from the Project with a busy main road in between (A3) so no likely significant effect from noise disturbance is anticipated.	No	No
Construction – Visual disturbance Wimbledon Common SAC is 5km from the Project with many barriers in between so no likely significant effect from visual disturbance anticipated.	No	No
Construction – Air quality and dust emissions Wimbledon Common SAC is 5km from the Project with a busy main road in between (A3) so no likely significant effect from Air quality and dust emissions is anticipated.	No	No
Operation – No impact pathways identified	No	No

Table E.6 Stage 1 Screening of South West London Waterbodies SPA and Ramsar

Designated site name:	South West London Waterbodies SPA (UK9012171) and Ramsar (UK11065)
Central grid reference and distance from site:	TQ026746 4.7km west of site
Qualifying features (SPA):	A051 Gadwall *Anas strepera* (Non-Breeding) A056 Northern shoveler *Anas clypeat* (Non-Breeding)
Ramsar criteria:	Ramsar Criterion 6 Supports over 1% of populations of the following species: Gadwall Anas strepera Northern shoveler Anas clypeata
Conservation objectives (SPA):	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring; The extent and distribution of the habitats of qualifying species The structure and function of the habitats of qualifying species The supporting processes on which the habitats of qualifying species rely The populations of qualifying species The distribution of qualifying species within the site There are no separate conservation objectives for the Ramsar.
SSSI Condition assessment:	Kempton Park Reservoirs SSSI: Unfavourable- recovering= 100%.

Unit	Feature	Condition	Condition Threat Risk
001	Neutral grassland - lowland	Unfavourable - Recovering	Medium
002	Standing open water and canals	Unfavourable - Recovering	Medium

<table>
<tr><td>Designated site name:</td><td colspan="3">South West London Waterbodies SPA (UK9012171) and Ramsar (UK11065)</td></tr>
<tr><td></td><td colspan="3">Knight and Bessborough Reservoirs SSS: Favourable = 100%.
<table>
<tr><th>Unit</th><th>Feature</th><th>Condition</th><th>Condition Threat Risk</th></tr>
<tr><td>001</td><td>Standing open water and canals</td><td>Favourable</td><td>Medium</td></tr>
</table></td></tr>
<tr><td>Site Improvement Plan (SIP):</td><td colspan="3">Public Access/Disturbance – Pressure / Threat - A051(NB) Gadwall, A056(NB) Shoveler. Measure – Produce written agreement with landowners and recreational users to reduce recreational disturbance
Changes in species distributions – Pressure / Threat - A051(NB) Gadwall, A056(NB) Shoveler. Measure – In partnership with bird recorders/watchers, review existing data and secure fit for-purpose recording practices across the SPA and its surroundings
Invasive species – Pressure / Threat - A051(NB) Gadwall, A056(NB) Shoveler. Measure – Manage Crassula helmsii and equip recreational users and landowners to monitor for the plant
Natural changes to site conditions – Pressure / Threat - A051(NB) Gadwall, A056(NB) Shoveler. Measure – Carry out strategic habitat management, including management of bankside vegetation
Fisheries: Fish stocking – Pressure - A051(NB) Gadwall, A056(NB) Shoveler. Measure – Secure appropriate fish stocking levels
Inappropriate weed control– Threat - A051(NB) Gadwall, A056(NB) Shoveler. Measure – Clarify appropriate weed control with owners and tenants through consents and carry out enforcement action where necessary
Invasive species – Threat - A051(NB) Gadwall, A056(NB) Shoveler. Measure – Research Egyptian geese, and control if necessary</td></tr>
<tr><td colspan="4">Potential Effects</td></tr>
<tr><td colspan="2">Screening assessment</td><td>Risk of Likely Significant Effects (LSEs) alone?</td><td>If no LSEs alone: residual low-level effect requiring in-combination assessment?</td></tr>
</table>

Designated site name:	South West London Waterbodies SPA (UK9012171) and Ramsar (UK11065)	
Construction – Noise disturbance. At 4.7km away and with the London suburb of Teddington in between South West London Waterbodies SPA and Ramsar site and the Project there will be no likely significant effects from noise on the qualifying features.	No	No
Construction – Visual disturbance. At 4.7km away and with the London suburb of Teddington in between South West London Waterbodies SPA and Ramsar site and the Project there will be no likely significant effects from visual disturbance on the qualifying features.	No	No
Construction – Air quality and dust emissions. At 4.7km away and with the London suburb of Teddington in between South West London Waterbodies SPA and Ramsar site and the Project there will be no likely significant effect from air quality or dust emissions on the qualifying features.	No	No
Construction – Loss of habitat. None of the construction takes place in suitable habitat for gadwall or northern shoveler, as such no likely significant effects on the qualifying features is anticipated.	No	No
Operation – No impact pathways identified. The South West London Waterbodies SPA and Ramsar site are located upstream of the Project therefore there is no pathway for impacts from water changes in the Thames. The Habitats Site is sufficiently far enough away from the Project to be outside of the zone of influence of any other project related effects.	No	No

Table E.7 Stage 1 Screening of Thames Estuary and Marshes SPA and Ramsar

Designated site name:	Thames Estuary and Marshes SPA (UK9012021) and Ramsar (UK11069)
Central grid reference and distance from site:	TQ73547879 50.9km east of site – overland. 70km downstream– hydrologically connected, downstream receptor
Qualifying features (SPA):	A082 *Circus cyaneus;* Hen harrier (Non-breeding) A132 *Recurvirostra avosetta*; Pied avocet (Non-breeding) A137 *Charadrius hiaticula*; Ringed plover (Non-breeding) A141 *Pluvialis squatarola*; Grey plover (Non-breeding) A143 *Calidris canutus*; Red knot (Non-breeding) A149 *Calidris alpina alpina*; Dunlin (Non-breeding) A156 *Limosa limosa islandica;* Black-tailed godwit (Non-breeding) A162 *Tringa totanus;* Common redshank (Non-breeding) Waterbird assemblage Over winter the area regularly supports: 75019 waterfowl (5 year peak mean 1991/92-1995/96) Including: Pied avocet, grey plover, red knot, dunlin , black -tailed godwit and common redshank
Ramsar criteria:	<u>Ramsar Criterion 2</u> The site supports a number of rare plants and animals including sea barley (*Hordeum marinum*), curved hard-grass (*Parapholis incurve*), annual beard-grass (*Polypogon monspeliensis*), Borrer's saltmarsh-grass (*Puccinellia fasciculata*), slender hare`s-ear (*Bupleurum tenuissimum*), sea clover (*Trifolium squamosum*), saltmarsh goose-foot (*Chenopodium chenopodioides*), golden samphire (*Inula crithmoides*), perennial glasswort (*Sarcocornia perennis*) and one-flowered glasswort (*Salicornia pusilla*). It also supports the following Red Data Book invertebrate species ground beetle (*Polistichus connexus*), a fly (*Cephalops perspicuous*), a dancefly (*Poecilobothrus ducalis*), a fly (*Anagnota collini*), a weevil (*Baris scolopacea*), a water beetle (*Berosus spinosus*), a beetle (*Malachius vulneratus*), a rove beetle

Designated site name:	Thames Estuary and Marshes SPA (UK9012021) and Ramsar (UK11069)
	(*Philonthus punctus*), the ground lackey moth (*Malacosoma castrensis*), a horsefly (*Atylotus latistriatuus*), a fly (*Campsicnemus magius*), a solider beetle, (*Cantharis fusca),* and a cranefly (*Limonia Danica*). A significant number of non-wetland British Red Data Book species also occur. <u>Ramsar Criterion 5</u> 45118 waterfowl (5-year peak mean 1998/99-2002/2003) <u>Ramsar Criterion 6</u> Species with peak counts in spring/autumn: *Charadrius hiaticula*; Ringed plover (Non-breeding) - 595 individuals, representing an average of 1.8% of the GB population (5-year peak mean 1998/92002/3) *Limosa islandica;* Black-tailed godwit (Non-breeding) - 1640 individuals, representing an average of 4.6% of the population (5-year peak mean 1998/9-2002/3) Species with peak counts in winter: *Pluvialis squatarola*; Grey plover (Non-breeding) - 1643 individuals, representing an average of 3.1% of the GB population (5-year peak mean 1998/9-2002/3) *Calidris canutus*; Red knot (Non-breeding) - 7279 individuals, representing an average of 1.6% of the population (5-year peak mean 1998/9-2002/3) *Calidris alpina alpina*; Dunlin (Non-breeding) - 15171 individuals, representing an average of 1.1% of the population (5-year peak mean 1998/9-2002/3) *Tringa totanus;* Common redshank (Non-breeding) - 1178 individuals, representing an average of 1% of the GB population (5-year peak mean 1998/92002/3)

<table>
<tr><td>Designated site name:</td><td>Thames Estuary and Marshes SPA (UK9012021) and Ramsar (UK11069)</td></tr>
<tr><td>Conservation objectives (SPA):</td><td>Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features by maintaining or restoring;
The extent and distribution of the habitats of qualifying species
The structure and function of the habitats of qualifying species
The supporting processes on which the habitats of qualifying species rely
The populations of qualifying species
The distribution of qualifying species within the site

There are no separate conservation objectives for the Ramsar.</td></tr>
<tr><td>SSSI Condition Assessment:</td><td>Mucking Flats and Marshes SSSI: Favourable = 75.00%, Unfavourable- recovering = 25.00%.
<table>
<tr><th>Unit</th><th>Feature</th><th>Condition</th><th>Condition Threat Risk</th></tr>
<tr><td>001</td><td>Inshore sublittoral sediment</td><td>Unfavourable - Recovering</td><td>No identified condition threat</td></tr>
<tr><td>002</td><td>Littoral sediment</td><td>Favourable</td><td>No identified condition threat</td></tr>
<tr><td>003</td><td>Littoral sediment</td><td>Favourable</td><td>No identified condition threat</td></tr>
<tr><td>004</td><td>Littoral sediment</td><td>Favourable</td><td>No identified condition threat</td></tr>
</table>
South Thames Estuary and Marshes SSSI Favourable= 82.75%, Unfavourable- recovering= 3.44%. Unfavourable no change = 1.72%, Unfavourable declining = 12.06%.
<table>
<tr><th>Unit</th><th>Feature</th><th>Condition</th><th>Condition Threat Risk</th></tr>
<tr><td>6</td><td>Neutral grassland - lowland</td><td>Favourable</td><td>High</td></tr>
<tr><td>7</td><td>Neutral grassland - lowland</td><td>Favourable</td><td>High</td></tr>
</table></td></tr>
</table>

Designated site name:	Thames Estuary and Marshes SPA (UK9012021) and Ramsar (UK11069)			
	8	Neutral grassland - lowland	Favourable	High
	9	Neutral grassland - lowland	Favourable	High
	10	Neutral grassland - lowland	Unfavourable - Declining	High
	11	Neutral grassland - lowland	Unfavourable - Recovering	High
	12	Neutral grassland - lowland	Favourable	High
	13	Neutral grassland - lowland	Favourable	High
	14	Neutral grassland - lowland	Favourable	High
	15	Neutral grassland - lowland	Favourable	High
	16	Neutral grassland - lowland	Favourable	High
	17	Neutral grassland - lowland	Favourable	High
	18	Neutral grassland - lowland	Favourable	High
	19	Neutral grassland - lowland	Favourable	High
	20	Neutral grassland - lowland	Favourable	High
	21	Neutral grassland - lowland	Favourable	High
	22	Neutral grassland - lowland	Favourable	High
	24	Neutral grassland - lowland	Favourable	High
	25	Neutral grassland - lowland	Favourable	High
	26	Neutral grassland - lowland	Favourable	High
	27	Neutral grassland - lowland	Unfavourable - Declining	High
	28	Neutral grassland - lowland	Unfavourable - Declining	High

Designated site name:	Thames Estuary and Marshes SPA (UK9012021) and Ramsar (UK11069)			
	29	Neutral grassland - lowland	Unfavourable - Declining	High
	31	Neutral grassland - lowland	Favourable	High
	32	Neutral grassland - lowland	Favourable	High
	34	Neutral grassland - lowland	Favourable	High
	35	Neutral grassland - lowland	Favourable	High
	36	Neutral grassland - lowland	Favourable	High
	37	Neutral grassland - lowland	Favourable	High
	38	Neutral grassland - lowland	Favourable	High
	39	Neutral grassland - lowland	Unfavourable - Declining	High
	40	Neutral grassland - lowland	Favourable	High
	41	Neutral grassland - lowland	Unfavourable - No change	High
	42	Neutral grassland - lowland	Favourable	High
	43	Neutral grassland - lowland	Favourable	High
	44	Boundary and linear features	Favourable	High
	45	Neutral grassland - lowland	Favourable	High
	46	Neutral grassland - lowland	Favourable	High
	47	Neutral grassland - lowland	Favourable	High
	48	Standing open water and canals	Favourable	High
	49	Standing open water and canals	Favourable	High
	50	Standing open water and canals	Favourable	High

Designated site name:	Thames Estuary and Marshes SPA (UK9012021) and Ramsar (UK11069)			
	51	Standing open water and canals	Favourable	High
	52	Inshore sublittoral sediment - cl	Favourable	High
	53	Inshore sublittoral sediment - cl	Favourable	High
	54	Inshore sublittoral sediment - cl	Favourable	High
	56	Inshore sublittoral sediment - cl	Unfavourable - Recovering	High
	57	Neutral grassland - lowland	Favourable	High
	58	Neutral grassland - lowland	Favourable	High
	59	Neutral grassland - lowland	Favourable	High
	60	Neutral grassland - lowland	Favourable	High
	61	Neutral grassland - lowland	Favourable	High
	62	Neutral grassland - lowland	Favourable	High
	64	Neutral grassland - lowland	Favourable	High
	100	Littoral sediment	Unfavourable - Declining	High
	101	Littoral sediment	Unfavourable - Declining	High
	102	Littoral sediment	Favourable	High
	103	Littoral sediment	Favourable	High
	WSU	Whole Site Units	N/A	High
Site Improvement Plan (SIP):	Costal squeeze – Pressure – A082(NB) Hen Harrier, A132(NB) Avocet, A137(NB) Ringed Plover, A141(NB) Grey Plover, A143(NB) Red knot, A149(NB) Dunlin, A156(NB) Black-tailed Godwit, A162(NB) Common redshank, Waterbird assemblage. Measure – Implement the South East Habitat Creation Programme			

Designated site name:	Thames Estuary and Marshes SPA (UK9012021) and Ramsar (UK11069)
	Public Access/Disturbance – Pressure / Threat – A082(NB) Hen Harrier, A132(NB) Avocet, A137(NB) Ringed Plover, A141(NB) Grey Plover, A143(NB) Red knot, A149(NB) Dunlin, A156(NB) Black-tailed Godwit, A162(NB) Common redshank, Waterbird assemblage Invasive species –Threat – A082(NB) Hen Harrier, A132(NB) Avocet, A137(NB) Ringed Plover, A141(NB) Grey Plover, A143(NB) Red knot, A149(NB) Dunlin, A156(NB) Black-tailed Godwit, A162(NB) Common redshank, Waterbird assemblage. Measure – Manage *Crassula helmsii* and equip recreational users and landowners to monitor the plan Changes in species distributions – Pressure / Threat – A082(NB) Hen Harrier, A132(NB) Avocet, A137(NB) Ringed Plover, A141(NB) Grey Plover, A143(NB) Red knot, A149(NB) Dunlin, A156(NB) Black-tailed Godwit, A162(NB) Common redshank, Waterbird assemblage. Measure – In partnership with bird recorders/watchers, review existing data and secure fit-for-purpose recording practices across the SPA and its surroundings Fisheries: Commercial marine and estuarine – Pressure / Threat – A082(NB) Hen Harrier, A132(NB) Avocet, A137(NB) Ringed Plover, A141(NB) Grey Plover, A143(NB) Red knot, A149(NB) Dunlin, A156(NB) Black-tailed Godwit, A162(NB) Common redshank, Waterbird assemblage. Measure – Investigate fishing activity and mechanisms for regulating it Invasive species –Threat – Waterbird assemblage. Measure – Investigate the impact of freshwater invasives on SPA birds Invasive species –Threat – A082(NB) Hen Harrier, A132(NB) Avocet, A137(NB) Ringed Plover, A141(NB) Grey Plover, A143(NB) Red knot, A149(NB) Dunlin, A156(NB) Black-tailed Godwit, A162(NB) Common redshank. Measure – Investigate the impact of *Spartina anglica* on native saltmarsh and birds Vehicles: illicit – Pressure – A082(NB) Hen Harrier, A132(NB) Avocet, A137(NB) Ringed Plover, A141(NB) Grey Plover, A143(NB) Red knot, A149(NB) Dunlin, A156(NB) Black-tailed Godwit, A162(NB) Common redshank, Waterbird assemblage. Measure – Collate and report incidences of illicit vehicle use Fisheries: Commercial marine and estuarine –Threat - A082(NB) Hen Harrier, A132(NB) Avocet, A137(NB) Ringed Plover, A141(NB) Grey Plover, A143(NB) Red knot, A149(NB) Dunlin, A156(NB) Black-tailed Godwit, A162(NB) Common redshank, Waterbird assemblage. Measure – Introduce appropriate management as required and ensure compliance with bylaws

Designated site name:	Thames Estuary and Marshes SPA (UK9012021) and Ramsar (UK11069)	
	Air Pollution: risk of atmospheric nitrogen deposition –Threat – A082(NB) Hen Harrier. Measure – Control, reduce and ameliorate atmospheric nitrogen impacts	
Potential Effects		
Screening assessment	Risk of Likely Significant Effects (LSEs) alone?	If no LSEs alone: residual low-level effect requiring in-combination assessment?
Construction – No impact pathways identified due to distance from site	No	No
Operation – Raised water temperature Temperature modelling reveals that at 75Ml/d there will be negligible changes in the estuary temperature[15]. Under most conditions, temperature changes will be limited to area directly around the outflow. As such no likely significant effects on the qualifying features are predicted from the Project alone. All of the projects or plans identified within the cumulative effects shortlist in the EIA Scoping Report Appendix G are located outside of the area where negligible changes are predicted to occur from the Project. Therefore, there will be no in-combination effect to this Habitats Site.	No	No
Operation – Nutrient Loading **Treated effluent discharge will not have an effect on water chemistry due to application of advanced treatment processes** from TTP. Due to the Project reducing the discharge of secondary treated final effluent from Mogden STW and replacing it upstream with water treated to a higher standard, this will result in lower levels of nutrients Water Framework Directive chemicals[16]. As such, no LSEs on the qualifying features are predicted. The Project itself will result in an improvement to water quality therefore there is no effect present to consider in-combination with other projects and plans.	No	No

Designated site name:	Thames Estuary and Marshes SPA (UK9012021) and Ramsar (UK11069)	
Operation – Rate of discharge Given the distance between the discharge location and the Thames Estuary and Marshes SPA and Ramsar, the volume of the River Thames at this location and the Project reducing existing discharge from Mogden STW, there is no anticipated LSE on the qualifying features[17].	No	No
Operation – Reduced dissolved O_2 levels Due to the Project reducing the discharge of final effluent from Mogden STW and replacing it upstream with water treated to a higher standard, modelling predicts a slight increase in dissolved oxygen within the estuary; as such, no likely significant effects on the qualifying features are predicted.	No	No

Table E.8 Stage 1 Screening of Lee Valley SPA SPA and Ramsar

Designated site name:	Lee Valley SPA (UK9012111) and Ramsar (UK11034)
Central Grid Reference and Location and distance from site	TQ352892 0km (TLT discharges directly into the site)
Qualifying features (SPA):	A021 Bittern, *Botaurus stellaris* (Non-breeding) A051Gadwall, *Anas strepera* (Non-breeding) A056 Shoveler, *Spatula clypeata* (Non-breeding)
Ramsar criteria:	Ramsar Criterion 2 Whorled water-milfoil *Myriophyllum verticillatum* *Micronecta minutissima* (a water-boatman) Ramsar criterion 6 Supports over 1% of populations of the following species: Shoveler, *Spatula clypeata* Gadwall , *Anas strepera*
Conservation objectives (SPA):	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring The extent and distribution of the habitats of the qualifying features The structure and function of the habitats of the qualifying features The supporting processes on which the habitats of the qualifying features rely The population of each of the qualifying features, and The distribution of the qualifying features within the site

<table>
<tr><td>Designated site name:</td><td>Lee Valley SPA (UK9012111) and Ramsar (UK11034)</td></tr>
<tr><td>SSSI Condition assessment:</td><td>Amwell Quarry SSSI, Rye Meads SSSI, Turnford and Cheshunt Pits SSSI are all underlying SSSIs for the Lee Valley SPA, however they are located over 10km upstream from Lockwood Pumping Station, part of Thames Water Lee Valley reservoirs in North London and therefore there will be no effect to these sites from the Project. They are not considered further in this report.

Lockwood Reservoir is Unit 001 of Walthamstow Reservoirs SSSI: Favourable = 100%.

<table>
<tr><th>Unit</th><th>Feature</th><th>Condition</th><th>Condition Threat Risk</th></tr>
<tr><td>001</td><td>Standing open water and canals</td><td>Favourable</td><td>Low</td></tr>
<tr><td>002</td><td>Standing open water and canals</td><td>Favourable</td><td>Low</td></tr>
<tr><td>003</td><td>Standing open water and canals</td><td>Favourable</td><td>Low</td></tr>
<tr><td>004</td><td>Standing open water and canals</td><td>Favourable</td><td>Low</td></tr>
<tr><td>005</td><td>Standing open water and canals</td><td>Favourable</td><td>Low</td></tr>
<tr><td>006</td><td>Standing open water and canals</td><td>Favourable</td><td>Low</td></tr>
<tr><td>007</td><td>Standing open water and canals</td><td>Favourable</td><td>Low</td></tr>
<tr><td>008</td><td>Standing open water and canals</td><td>Favourable</td><td>Low</td></tr>
<tr><td>009</td><td>Standing open water and canals</td><td>Favourable</td><td>Low</td></tr>
<tr><td>010</td><td>Standing open water and canals</td><td>Favourable</td><td>Low</td></tr>
</table>
</td></tr>
<tr><td>Site Improvement Plan (SIP)</td><td>Water Pollution - Threat - A021(NB) Bittern, A051(NB) Gadwall, A056(NB) Shoveler. Measure Investigate and agree appropriate water quality
Hydrological changes - Threat - A021(NB) Bittern, A051(NB) Gadwall, A056(NB) Shoveler. Measure - Investigate and agree appropriate water levels</td></tr>
</table>

Designated site name:	Lee Valley SPA (UK9012111) and Ramsar (UK11034)		
	Public Access/Disturbance - Threat - A021(NB) Bittern, A051(NB) Gadwall, A056(NB) Shoveler. Measure - Investigate recreational pressure priority areas and agree management measures Inappropriate Scrub Control - Threat - A021(NB) Bittern, A051(NB) Gadwall, A056(NB) Shoveler. Measure - Manage scrub to required levels to maintain/restore habitat Fisheries: Fish Stocking - Threat - A021(NB) Bittern, A051(NB) Gadwall, A056(NB) Shoveler. Measure - Investigate and agree appropriate fish stocking Invasive Species- Threat - A021(NB) Bittern, A051(NB) Gadwall, A056(NB) Shoveler. Measure - Investigate and agree appropriate management response Inappropriate Cutting/Mowing- Threat - A021(NB) Bittern, A051(NB) Gadwall, A056(NB) Shoveler. Measure - Manage reed beds for bitterns Air Pollution: risk of atmospheric nitrogen deposition- Threat - A021(NB) Bittern, A051(NB) Gadwall, A056(NB) Shoveler. Measure - Investigate the potential impacts of air pollution		
Potential Effects			
Screening		Risk of Likely Significant Effects (LSEs) alone?	If no LSEs alone: residual low-level effect requiring in-combination assessment?
Construction – No impact pathways identified The Project will utilise the existing TLT, and no additional construction will be required.		No	No
Operation – Change in water quality Abstraction of water through the Project's river intake at Teddington would result in a portion of the water in the TLT being sourced from a different abstraction location on the freshwater River Thames than the current source. The current source is located upstream of Teddington at the existing Hampton intake, and abstraction from the current source to the TLT is likely to continue during operational periods of the Project. Water quality at the		No	Yes

Designated site name:	Lee Valley SPA (UK9012111) and Ramsar (UK11034)		
two locations on the River Thames is very similar. Water from the two sources would be mixed within the TLT with water already in the Lee Valley SPA and Ramsar at the time of operation. As such, there is a low risk of environmental effects due to negligible changes in water quality. There are no known projects or plans that would result in additional changes in water quality; therefore, there is no pathway for in-combination effects to occur.			
Construction – Change in water temperature. Temperature modelling for the River Thames reveals that at 75Ml/d, there will be negligible changes in the estuary temperature[18]. Under most conditions, temperature changes will be limited to area directly around the outflow within the River Thames. The intake for TLT is located outside of the modelled plume of effects; therefore, there will be no change in water temperature to any water transferred into Lee Valley SPA and Ramsar.	No	No	

Summary of Stage 1 Screening

E.4.4 A summary of the outcomes of the Stage 1 Screening for the Project is presented below in Table E.9. The only site identified for carrying through to Stage 2 Appropriate Assessment is Richmond Park SAC.

Table E.9 Summary of LSE on Habitats sites from Teddington DRA

Designated Site	Qualifying features	LSE from the Project Alone?	LSE from the Project in-combination?	Impact pathway
Richmond Park SAC	Stag beetle	Yes	N/A	Construction – Direct mortality Construction – Loss of functionally linked habitat Construction – Air quality and dust emissions. Construction – Visual disturbance
Wimbledon Common SAC	Northern Atlantic wet heaths with *Erica tetralix*	No	No	Distance from the Project stops any LSE or low-level effect
	European dry heaths		No	
	Stag beetle		No	Construction – Whilst there is a non-significant effect from the Project alone, a review of the projects and plans listed in Appendix G of the EIA Scoping Report does not identify any construction activities located in habitat likely to support stag beetle within the 2km ZoI at the same time as the proposed construction dates for the Project, therefore there is no pathway for LSE in-combination.
South West London Waterbodies SPA and Ramsar	Northern shoveler	No	No	Distance from the Project and location upstream of outflow stops any LSE or low-level effect.
	Gadwall		No	
	Avocet	No	No	

Designated Site	Qualifying features	LSE from the Project Alone?	LSE from the Project in-combination?	Impact pathway
Thames Estuary and Marshes SPA	Black-tailed godwit			Distance from the Project stops any LSE or low-level effect
	Dunlin			
	Grey plover			
	Hen harrier			
	Red knot			
	Redshank			
	Ringed plover			
	Waterfowl assemblage			
Thames Estuary and Marshes Ramsar[19]	Ramsar criterion 2 – wetland plant and invertebrate assemblages	No	No	Distance from the Project stops any LSE or low-level effect
	Ramsar criterion 5 – waterbird assemblage			
	Ramsar Criterion 6 - Species with peak counts in spring/autumn (Ringed plover and Black-tailed godwit)			
	Ramsar Criterion 6 - Species with peak counts in winter (Common redshank, Dunlin, red knot and grey plover)			
Lee Valley SPA	Bittern	No	No	

Designated Site	Qualifying features	LSE from the Project Alone?	LSE from the Project in-combination?	Impact pathway
	Gadwall			Whilst there is a non-significant effect from the Project alone, a review of the projects and plans listed in Appendix G of the EIA Scoping Report does not identify any projects or plans with operational effects to this Habitats Site therefore there is no pathway for LSE in-combination.
	Shoveler			
Lee Valley Ramsar	Ramsar Criterion 2 Whorled water-milfoil *Micronecta minutissima* (a water-boatman)	No	No	Whilst there is a non-significant effect from the Project alone, a review of the projects and plans listed in Appendix G of the EIA Scoping Report does not identify any projects or plans with operational effects on this Habitats Site; therefore, there is no pathway for LSE in-combination
	Ramsar criterion 6 - Species with peak counts in spring/autumn (Shoveler)			
	Ramsar criterion 6 - Species with peak counts in winter (Gadwall)			

E.5. Screening Statement

E.5.1 The HRA Stage 1 Screening identified eight Habitats Sites which could be affected by the proposed works: Richmond Park SAC (UK0030246), Wimbledon Common SAC (UK0030301), South West London Waterbodies SPA (UK9012171), South West London Waterbodies Ramsar (UK11065), Thames Estuary and Marshes SPA (UK9012021), Thames Estuary and Marshes Ramsar (UK11069), Lee Valley SPA (UK9012111) and Lee Valley Ramsar (UK11034).

E.5.2 Additionally, one bat site, Mole Gap to Reigate Escarpment SAC (UK0012804), is located within the 30km ZoI of the Project. This Habitats Site was removed from the HRA at an early stage as there would be no effect from the Project.

E.5.3 For Richmond Park SAC, likely significant effects on the stag beetle qualifying feature were identified from the construction phase of the Project alone, resulting from the potential for direct mortality, loss of functionally linked land, air quality and visual disturbance. Therefore, Stage 2 Appropriate Assessment is required for this Habitats Site. No other likely significant effects are predicted for Richmond Park SAC either during construction or operation.

E.5.4 The potential for in-combination effects on Wimbledon Common SAC stag beetle meta-population was identified as a risk, but there are no identified projects or plans that could also have an effect on this Habitats Site; therefore, there will be no LSE. No other likely significant effects are predicted for Richmond Park SAC either during construction or operation.

E.5.5 There will be no likely significant effect either alone or in-combination to South West London Waterbodies SPA and Ramsar or Thames Estuary and Marshes SPA and Ramsar, as these Habitats sites are sufficiently distant from the localised effects of the Project.

E.5.6 There will be no likely significant effect alone on Lee Valley SPA and Ramsar as the abstraction for TLT is sufficiently distant from the localised effects of the Project for any change in water quality to have an effect on the Habitats Site. There will be no LSE in-combination as there are no identified projects or plans that could also have an effect on Lee Valley SPA and Ramsar.

Annex. Natura 2000 citation forms

EC Directive 92/43 on the Conservation of Natural Habitats and of Wild Fauna and Flora

Citation for Special Area of Conservation (SAC)

Name:	Richmond Park
Unitary Authority/County:	Greater London
SAC status:	Designated on 1 April 2005
Grid reference:	TQ199728
SAC EU code:	UK0030246
Area (ha):	846.68
Component SSSI:	Richmond Park SSSI

Site description:
Richmond Park has been managed as a royal deer park since the seventeenth century, producing a range of habitats of value to wildlife. In particular, Richmond Park is of importance for its diverse deadwood beetle fauna associated with the ancient trees found throughout the parkland. Many of these beetles are indicative of ancient forest areas where there has been a long continuous presence of over-mature timber. The site is at the heart of the south London centre of distribution for stag beetle *Lucanus cervus*.

Qualifying species: The site is designated under **article 4(4)** of the Directive (92/43/EEC) as it hosts the following species listed in Annex II:

- Stag beetle *Lucanus cervus*

This citation relates to a site entered in the Register of European Sites for Great Britain.
Register reference number: UK0030246
Date of registration: 14 June 2005
Signed: [redacted]
On behalf of the Secretary of State for Environment, Food and Rural Affairs

EC Directive 92/43 on the Conservation of Natural Habitats and of Wild Fauna and Flora

Citation for Special Area of Conservation (SAC)

Name:	Wimbledon Common
Unitary Authority/County:	Greater London
SAC status:	Designated on 1 April 2005
Grid reference:	TQ227719
SAC EU code:	UK0030301
Area (ha):	348.31
Component SSSI:	Wimbledon Common SSSI

Site description:
Wimbledon Common supports an extensive area of open, wet heath on acidic soil and also contains a variety of other acidic heath and grassland communities. The high plateau in the east and north of the site has a capping of glacial gravels overlying Claygate Beds and London Clay, which are exposed on the western slope of the Common. The acidic soils and poor drainage give rise to a mosaic of wet heath and unimproved acidic grassland. Semi-natural broadleaved woodland covers the deeper, clay soils of the western slope.

A significant cover of heather *Calluna vulgaris* distinguishes areas of dry and wet heath. The wet heath supports typical species such as the heath rush *Juncus squarrosus*. The brown sedge *Carex disticha* is present, as is mat-grass *Nardus stricta* on drier parts. Localised areas of dry heath support bell heather *Erica cinerea* and dwarf gorse *Ulex minor*.

The semi-natural woods of the clay soils comprise a dense canopy of maturing pedunculate oak *Quercus robur* and silver birch *Betula pendula*, with beech *Fagus sylvatica*, hornbeam *Carpinus betulus* and aspen *Populus tremula* in parts. Holly *Ilex aquifolium* is the dominant understorey species. Hazel *Corylus avellana* and alder buckthorn *Frangula alnus*, also occur. Where sufficient light penetrates there is a herb layer of bracken *Pteridium aquilinum* and bramble *Rubus fruticosus* agg. Wimbledon Common has a large number of old trees and much fallen decaying timber. The site supports a number of other scarce invertebrate species associated with decaying timber, including stag beetle *Lucanus cervus*.

Qualifying habitats: The site is designated under **article 4(4)** of the Directive (92/43/EEC) as it hosts the following habitats listed in Annex I:

- European dry heaths
- Northern Atlantic wet heaths with *Erica tetralix*. (Wet heathland with cross-leaved heath)

Qualifying species: The site is designated under **article 4(4)** of the Directive (92/43/EEC) as it hosts the following species listed in Annex II:

- Stag beetle *Lucanus cervus*

This citation relates to a site entered in the Register of European Sites for Great Britain.
Register reference number: UK0030301
Date of registration: 14 June 2005
Signed: [redacted]
On behalf of the Secretary of State for Environment, Food and Rural Affairs

EC Directive 79/409 on the Conservation of Wild Birds: Special Protection Area (SPA)

Name: South West London Waterbodies

Unitary Authority/County: London Borough of Hounslow, Royal Borough of Windsor & Maidenhead and Surrey.

Consultation proposal: Kempton Park Reservoirs Site of Special Scientific Interest (SSSI), Knight & Bessborough Reservoirs SSSI, Thorpe Park No. 1 Gravel Pit SSSI, Wraysbury No. 1 Gravel Pit SSSI, Wraysbury Reservoir SSSI, and parts of Staines Moor SSSI and Wraysbury & Hythe End Gravel Pits SSSI have been recommended as a Special Protection Area because of the site's European ornithological interest.

The South West London Waterbodies SPA comprises a series of embanked water supply reservoirs and former gravel pits that support a range of man-made and semi-natural open-water habitats.

Boundary of SPA: The SPA boundary is coincident with Kempton Park Reservoirs SSSI, Knight & Bessborough Reservoirs SSSI, Thorpe Park No. 1 Gravel Pit SSSI, Wraysbury No. 1 Gravel Pit SSSI , Wraysbury Reservoir SSSI, and includes parts of Staines Moor SSSI and Wraysbury & Hythe End Gravel Pits SSSI. See SPA map for further detail.

Size of SPA: The SPA covers an area of 828.14 ha.

European ornithological interest of SPA
South West London Waterbodies SPA is of European importance because:

a) the site qualifies under **article 4.2** of the Directive (79/409/EEC) as it is used regularly by 1% or more of the biogeographical populations of the following regularly occurring migratory species (other than those listed on Annex 1), in any season:

Migratory species	5 year peak mean 1993/94 - 1997/98	% of population
Gadwall *Anas strepera*	710 individuals - wintering	2.4 % NW Europe
Shoveler *Anas clypeata*	853 individuals - wintering	2.1 % NW/Central Europe

Bird figures from WeBS database.

Non-qualifying species of interest
In addition, the site supports nationally important numbers of cormorant *Phalacrocorax carbo*, great crested grebe *Podiceps cristatus*, tufted duck *Aythya fuligula*, pochard *Aythya ferina* and coot *Fulica atra*.

Status of SPA
South West London Waterbodies was classified as a Special Protection Area on 22 September 2000.

Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.

2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.

3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

1. Name and address of the compiler of this form:

FOR OFFICE USE ONLY.
DD MM YY
Designation date | Site Reference Number

Joint Nature Conservation Committee
Monkstone House
City Road
Peterborough
Cambridgeshire PE1 1JY
UK
Telephone/Fax: +44 (0)1733 – 562 626 / +44 (0)1733 – 555 948
Email: RIS@JNCC.gov.uk

2. Date this sheet was completed/updated:
Designated: 22 September 2000

3. Country:
UK (England)

4. Name of the Ramsar site:
South West London Waterbodies

5. Designation of new Ramsar site or update of existing site:

This RIS is for: Updated information on an existing Ramsar site

6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary and area:

** Important note: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

7. Map of site included:

Refer to Annex III of the *Explanatory Notes and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:

i) **hard copy** (required for inclusion of site in the Ramsar List): *yes* ✔ -or- *no* ☐;
ii) **an electronic format** (e.g. a JPEG or ArcView image) Yes
iii) **a GIS file providing geo-referenced site boundary vectors and attribute tables** *yes* ✔ -or- *no* ☐;

b) Describe briefly the type of boundary delineation applied:

e.g. the boundary is the same as an existing protected area (nature reserve, national park etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The site boundary is the same as, or falls within, an existing protected area.

For precise boundary details, please refer to paper map provided at designation

8. Geographical coordinates (latitude/longitude):
51 23 59 N 00 23 26 E

9. General location:

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

Nearest town/city: London

The site is comprised of a series of discrete waterbodies in the Thames Valley between Windsor and Hampton Court.

Administrative region: Berkshire; Greater London; Surrey; Windsor and Maidenhead

10. Elevation (average and/or max. & min.) (metres): **11. Area** (hectares): 828.14

Min. 12
Max. 21
Mean 18

12. General overview of the site:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

The South West London Waterbodies site comprises a series of reservoirs and former gravel pits that support internationally important numbers of wintering *Anas strepera* and *Anas clypeata*.

13. Ramsar Criteria:

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

6

14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Ramsar criterion 6 – species/populations

occurring at levels of international importance.

Qualifying Species/populations (as identified at designation):

Species with peak counts in spring/autumn:

Northern shoveler , *Anas clypeata*, NW & C Europe	397 individuals, representing an average of 2.6% of the GB population (5 year peak mean 1998/9-2002/3)

Species with peak counts in winter:

Gadwall , *Anas strepera strepera*, NW Europe	487 individuals, representing an average of 2.8% of the GB population (5 year peak mean 1998/9-2002/3)

Contemporary data and information on waterbird trends at this site and their regional (sub-national) and national contexts can be found in the Wetland Bird Survey report, which is updated annually. See www.bto.org/survey/webs/webs-alerts-index.htm.

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15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:

Atlantic

b) biogeographic regionalisation scheme (include reference citation):

Council Directive 92/43/EEC

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16. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

Soil & geology	alluvium, clay, gravel, mud, neutral
Geomorphology and landscape	floodplain, lowland, valley
Nutrient status	eutrophic, mesotrophic
pH	circumneutral
Salinity	fresh
Soil	mainly mineral
Water permanence	usually permanent
Summary of main climatic features	Annual averages (Wisley, 1971–2000) (www.metoffice.com/climate/uk/averages/19712000/sites/wisley.html) Max. daily temperature: 14.6° C Min. daily temperature: 6.1° C Days of air frost: 47.4 Rainfall: 647.1 mm Hrs. of sunshine: 1534.7

General description of the Physical Features:

The site comprises a series of embanked water supply reservoirs and former gravel pits that support a range of man-made and semi-natural open-water habitats.

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17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

The site comprises a series of embanked water supply reservoirs and former gravel pits that support a range of man-made and semi-natural open-water habitats.

18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Other

19. Wetland types:

Human-made wetland, Inland wetland

Code	Name	% Area
6	Reservoirs / barrages / dams	80
7	Gravel / brick / clay pits	20

20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

Open water, plus associated wetland habitats including grassland and woodland supporting a number of wetland plant and animal species including internationally important numbers of wintering wildfowl.

Ecosystem services

21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in **12**. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

None reported

22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in **12**. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Birds

Species currently occurring at levels of national importance:

Species with peak counts in spring/autumn:

Great crested grebe , *Podiceps cristatus cristatus*, NW Europe	318 individuals, representing an average of 2% of the GB population (5 year peak mean 1998/9-2002/3)
Great cormorant , *Phalacrocorax carbo carbo*, NW Europe	318 individuals, representing an average of 1.3% of the GB population (5 year peak mean 1998/9-2002/3)
Tufted duck , *Aythya fuligula*, NW Europe	2731 individuals, representing an average of 3% of the GB population (5 year peak mean 1998/9-2002/3)

Species with peak counts in winter:

Black-necked grebe , *Podiceps nigricollis nigricollis*, Europe, N Africa	2 individuals, representing an average of 1.6% of the GB population (5 year peak mean 1998/9-2002/3)
Smew , *Mergellus albellus*, NW & C Europe	29 individuals, representing an average of 7.8% of the GB population (5 year peak mean 1998/9-2002/3)

Species Information
None reported

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23. Social and cultural values:

Describe if the site has any general social and/or cultural values e.g. fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

Aesthetic
Non-consumptive recreation
Scientific research
Sport fishing

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning? No

If Yes, describe this importance under one or more of the following categories:

i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:

ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:

iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:

iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

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24. Land tenure/ownership:

Ownership category	On-site	Off-site
Local authority, municipality etc.	+	+
Private	+	+
Other	+	+

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25. Current land (including water) use:

Activity	On-site	Off-site
Nature conservation	+	+
Tourism	+	+
Recreation	+	+
Current scientific research	+	+
Fishing: recreational/sport	+	+
Freshwater aquaculture		+
Grazing (unspecified)		+

Industry		+
Mineral exploration (excl. hydrocarbons)	+	+
Transport route		+
Domestic water supply	+	+
Urban development		+
Non-urbanised settlements		+

26. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

Explanation of reporting category:

1. *Those factors that are still operating, but it is unclear if they are under control, as there is a lag in showing the management or regulatory regime to be successful.*
2. *Those factors that are not currently being managed, or where the regulatory regime appears to have been ineffective so far.*

NA = Not Applicable because no factors have been reported.

Adverse Factor Category	Reporting Category	Description of the problem (Newly reported Factors only)	On-Site	Off-Site	Major Impact?
No factors reported	NA				

For category 2 factors only. What measures have been taken / are planned / regulatory processes invoked, to mitigate the effect of these factors?
Is the site subject to adverse ecological change? NO

27. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

Conservation measure	On-site	Off-site
Site/ Area of Special Scientific Interest (SSSI/ASSI)	+	+
Special Protection Area (SPA)	+	
Site management statement/plan implemented	+	

b) Describe any other current management practices:
The management of Ramsar sites in the UK is determined by either a formal management plan or through other management planning processes, and is overseen by the relevant statutory conservation agency. Details of the precise management practises are given in these documents.

28. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

No information available

29. Current scientific research and facilities:

e.g. details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

Numbers of migratory and wintering wildfowl and waders are monitored annually as part of the national Wetland Birds Survey (WeBS) organised by the British Trust for Ornithology, Wildfowl & Wetlands Trust, the Royal Society for the Protection of Birds and the Joint Nature Conservation Committee.

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitor centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

None reported

31. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

Angling :fishing season only.

Sailing: all year round on gravel pits - club areas and slipways.

Birdwatching: all year round - no facilities.

32. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept. of Agriculture/Dept. of Environment, etc.

Head, Natura 2000 and Ramsar Team, Department for Environment, Food and Rural Affairs, European Wildlife Division, Zone 1/07, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6EB

33. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Site Designations Manager, English Nature, Sites and Surveillance Team, Northminster House, Northminster Road, Peterborough, PE1 1UA, UK

34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see **15** above), list full reference citation for the scheme.

Site-relevant references

Batten, LA, Bibby, CJ, Clement, P, Elliot, GD & Porter, RF (1990) *Red Data Birds in Britain. Action for rare, threatened and important species*. Poyser, London, for Nature Conservancy Council and Royal Society for the Protection of Birds

Fox, AD (1988) Breeding status of the gadwall in Britain and Ireland. *British Birds*, **81**(1), 51-66

Joint Nature Conservation Committee (1994) *Draft SPA list revision as at 22 December 1994*. Joint Nature Conservation Committee. Peterborough.

Lack, P (ed.) (1986) The atlas of wintering birds in Britain and Ireland. Poyser, Calton.

Musgrove, AJ, Pollitt, MS, Hall, C, Hearn, RD, Holloway, SJ, Marshall, PE, Robinson, JA & Cranswick, PA (2001) *The Wetland Bird Survey 1999–2000: wildfowl and wader counts*. British Trust for Ornithology, Wildfowl and Wetlands Trust, Royal Society for the Protection of Birds & Joint Nature Conservation Committee, Slimbridge. www.wwt.org.uk/publications/default.asp?PubID=14

Rose, PM & Scott, DA (1997) *Waterfowl population estimates*. 2nd edn. Wetlands International, Wageningen (Wetlands International Publication, No. 44) www.wetlands.org/IWC/wpe2/WPE2-toc.htm

Stone, BH, Sears, J, Cranswick, PA, Gregory, RD, Gibbons, DW, Rehfisch, MM, Aebischer, NJ & Reid, JB (1997) Population estimates of birds in Britain and in the United Kingdom. *British Birds*, **90**(1), 1-22

Stroud, DA, Chambers, D, Cook, S, Buxton, N, Fraser, B, Clement, P, Lewis, P, McLean, I, Baker, H & Whitehead, S (eds.) (2001) *The UK SPA network: its scope and content*. Joint Nature Conservation Committee, Peterborough (3 vols.) www.jncc.gov.uk/UKSPA/default.htm

EC Directive 79/409 on the Conservation of Wild Birds: Special Protection Area

Name: Thames Estuary and Marshes

Unitary Authority/County: Essex County Council, Gravesham Borough Council, Kent County Council, Medway Council, and Thurrock Borough Council.

Consultation proposal: Mucking Flats and Marshes SSSI and South Thames Estuary and Marshes SSSIs have been recommended as a Special Protection Area because of the site's European ornithological interest.

The Thames Estuary and Marshes Special Protection Area is a wetland of European importance comprising a mosaic of intertidal habitats, saltmarsh, coastal grazing marshes, saline lagoons and chalk pits. The site provides wintering and breeding habitats for important assemblages of wetland bird species, particularly wildfowl and waders as well as supporting migratory birds on passage. The site forms part of the wider Thames Estuary together with other classified SPAs in both Essex and Kent.

Boundary of SPA: The SPA boundary is within or coincident with the above SSSI boundaries. See SPA map for further detail.

Size of SPA: The SPA covers an area of 4,838.94 ha.

European ornithological importance of the SPA: Thames Estuary and Marshes SPA is of European importance because:

a) the site qualifies under **article 4.1** of the Directive (79/409/EEC) as it is used regularly by 1% or more of the GB populations of the following species listed on Annex I, in any season:

Annex I species	5 year peak mean 1993/94 - 1997/98	% GB population
Avocet *Recurvirostra avosetta*	283 individuals - wintering	28.3% GB
Hen Harrier *Circus cyaneus*	7 individuals - wintering	1.0% GB

b) the site qualifies under **article 4.2** of the Directive (79/409/EEC) as it is used regularly by 1% or more of the biogeographical populations of the following regularly occurring migratory species (other than those listed on Annex I), in any season:

Species	5 year peak mean 1993/94 - 1997/98	% of population
Ringed Plover *Charadrius hiaticula*	1,324 individuals - passage	2.6% Europe/ Northern Africa (win)
Grey Plover *Pluvialis squatarola*	2,593 individuals - wintering	1.7% Eastern Atlantic (wintering)
Dunlin *Calidris alpina alpina*	29,646 individuals - wintering	2.1% N Siberia/Europe/ W Africa
Knot *Calidris canutus islandica*	4,848 individuals - wintering	1.4% NE Can/Grl/ Iceland/NW Eur
Black-tailed Godwit *Limosa limosa islandica*	1,699 individuals - wintering	2.4% Iceland (breeding)
Redshank *Tringa totanus totanus*	3,251 individuals - wintering	2.2% Eastern Atlantic (wintering)

c) the site qualifies under **article 4.2** of the Directive (79/409/EEC) as it is used regularly by over 20,000 waterfowl in any season:

Period	Season	Population
1993/94 - 1997/98	Wintering	75,019

Non-qualifying species of interest

Other Annex 1 species which regularly occur on the site in non-qualifying numbers are breeding Common Tern *Sterna hirundo*, and passage and wintering Bewick's Swan *Cygnus columbianus bewickii*, Golden Plover *Pluvialis apricaria*, Ruff *Philomachus pugnax*, Short-eared Owl *Asio flammeus* and Kingfisher *Alcedo atthis*.

The site also supports nationally important populations of Shelduck *Tadorna tadorna*, Teal *Anas crecca*, Pintail *Anas acuta*, Gadwall *Anas strepera*, Shoveler *Anas clypeata*, Tufted Duck *Aythya fuligula* and Pochard *Aythya ferina*.

Status of SPA

The Thames Estuary and Marshes SPA was classified on 31 March 2000.

Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.

2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.

3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

1. Name and address of the compiler of this form:

FOR OFFICE USE ONLY.
DD MM YY
Designation date | Site Reference Number

Joint Nature Conservation Committee
Monkstone House
City Road
Peterborough
Cambridgeshire PE1 1JY
UK
Telephone/Fax: +44 (0)1733 – 562 626 / +44 (0)1733 – 555 948
Email: RIS@JNCC.gov.uk

2. Date this sheet was completed/updated:
Designated: 31 March 2000

3. Country:
UK (England)

4. Name of the Ramsar site:
Thames Estuary and Marshes

5. Designation of new Ramsar site or update of existing site:

This RIS is for: Updated information on an existing Ramsar site

6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary and area:

** Important note: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

7. Map of site included:

Refer to Annex III of the *Explanatory Notes and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:

i) **hard copy** (required for inclusion of site in the Ramsar List): *yes* ✔ -or- *no* □;
ii) **an electronic format** (e.g. a JPEG or ArcView image) Yes
iii) **a GIS file providing geo-referenced site boundary vectors and attribute tables** *yes* ✔ -or- *no* □;

b) Describe briefly the type of boundary delineation applied:

e.g. the boundary is the same as an existing protected area (nature reserve, national park etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The site boundary is the same as, or falls within, an existing protected area.

For precise boundary details, please refer to paper map provided at designation

8. Geographical coordinates (latitude/longitude):

51 29 08 N 00 35 47 E

9. General location:

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

Nearest town/city: Gravesend

Contains part of the north coast of Kent and part of the southern coast of Essex, straddling the Thames estuary.

Administrative region: Essex; Kent; Medway; Thurrock

10. Elevation (average and/or max. & min.) (metres): **11. Area** (hectares): 5588.59

Min. -2
Max. 20
Mean 1

12. General overview of the site:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

A complex of brackish, floodplain grazing marsh ditches, saline lagoons and intertidal saltmarsh and mudflat. These habitats together support internationally important numbers of wintering waterfowl. The saltmarsh and grazing marsh are of international importance for their diverse assemblages of wetland plants and invertebrates.

13. Ramsar Criteria:

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

2, 5, 6

14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Ramsar criterion 2

The site supports one endangered plant species and at least 14 nationally scarce plants of wetland habitats. The site also supports more than 20 British Red Data Book invertebrates.

Ramsar criterion 5

Assemblages of international importance:

Species with peak counts in winter:
45118 waterfowl (5 year peak mean 1998/99-2002/2003)

Ramsar criterion 6 – species/populations occurring at levels of international importance.

Qualifying Species/populations (as identified at designation):

Species with peak counts in spring/autumn:	
Ringed plover , *Charadrius hiaticula*, Europe/Northwest Africa	595 individuals, representing an average of 1.8% of the GB population (5 year peak mean 1998/9-2002/3)
Black-tailed godwit , *Limosa limosa islandica*, Iceland/W Europe	1640 individuals, representing an average of 4.6% of the population (5 year peak mean 1998/9-2002/3)
Species with peak counts in winter:	
Grey plover , *Pluvialis squatarola*, E Atlantic/W Africa -wintering	1643 individuals, representing an average of 3.1% of the GB population (5 year peak mean 1998/9-2002/3)
Red knot , *Calidris canutus islandica*, W & Southern Africa (wintering)	7279 individuals, representing an average of 1.6% of the population (5 year peak mean 1998/9-2002/3)
Dunlin , *Calidris alpina alpina*, W Siberia/W Europe	15171 individuals, representing an average of 1.1% of the population (5 year peak mean 1998/9-2002/3)
Common redshank , *Tringa totanus totanus*,	1178 individuals, representing an average of 1% of the GB population (5 year peak mean 1998/9-2002/3)

Contemporary data and information on waterbird trends at this site and their regional (sub-national) and national contexts can be found in the Wetland Bird Survey report, which is updated annually. See www.bto.org/survey/webs/webs-alerts-index.htm.
Details of bird species occuring at levels of National importance are given in Section 22

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15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:
Atlantic

b) biogeographic regionalisation scheme (include reference citation):
Council Directive 92/43/EEC

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16. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

Soil & geology	alluvium, mud, shingle
Geomorphology and landscape	coastal, floodplain, intertidal sediments (including sandflat/mudflat), estuary
Nutrient status	eutrophic
pH	no information
Salinity	brackish / mixosaline, fresh, saline / euhaline
Soil	no information
Water permanence	usually permanent, usually seasonal / intermittent
Summary of main climatic features	Annual averages (Greenwich, 1971–2000) (www.metoffice.com/climate/uk/averages/19712000/sites/greenwich.html) Max. daily temperature: 14.8° C Min. daily temperature: 7.2° C Days of air frost: 29.1 Rainfall: 583.6 mm Hrs. of sunshine: 1461.0

General description of the Physical Features:

The marshes extend for about 15 km along the south side of the Thames estuary and also include intertidal areas on the north side of the estuary. To the south of the river, much of the area is brackish grazing marsh, although some of this has been converted to arable use. At Cliffe, there are flooded clay and chalk pits, some of which have been infilled with dredgings. Outside the sea-wall, there is a small extent of saltmarsh and broad intertidal mudflats.

17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

The marshes extend for about 15 km along the south side of the Thames estuary and also include intertidal areas on the north side of the estuary. To the south of the river, much of the area is brackish grazing marsh, although some of this has been converted to arable use. At Cliffe, there are flooded clay and chalk pits, some of which have been infilled with dredgings. Outside the sea-wall, there is a small extent of saltmarsh and broad intertidal mudflats.

18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Shoreline stabilisation and dissipation of erosive forces, Sediment trapping, Flood water storage / desynchronisation of flood peaks, Maintenance of water quality (removal of nutrients)

19. Wetland types:

Marine/coastal wetland

Code	Name	% Area
G	Tidal flats	49.6
4	Seasonally flooded agricultural land	38.6
Q	Saline / brackish lakes: permanent	4.2
Ss	Saline / brackish marshes: seasonal / intermittent	3.2
Other	Other	1.6
H	Salt marshes	1.3
E	Sand / shingle shores (including dune systems)	0.8
O	Freshwater lakes: permanent	0.7

1.

20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

The intertidal flats are mostly fine, silty sediment, though in parts they are sandy. The saltmarsh shows a transition from pioneer communities containing *Zostera* to saltmarsh dominated by, for example, *Atriplex portulacoides*. The grazing marsh grassland is mesotrophic and generally species-poor. It does, however, contain scattered rarities, mostly annuals characteristic of bare ground. Where the grassland is seasonally inundated and the marshes are brackish the plant communities are intermediate between those of mesotrophic grassland and those of saltmarsh. The grazing marsh ditches contain a range of flora of brackish and fresh water. The aquatic flora is a mosaic of successional stages resulting from periodic clearance of drainage channels. The dominant emergent plants are *Phragmites communis* and *Bolboschoenus maritimus*. The saline lagoons have a diverse molluscan and crustacean fauna. Dominant plants in the lagoons include *Ulva* and *Chaetomorpha*.

Ecosystem services

21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in **12**. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Nationally important species occurring on the site:

Higher plants:

The site supports a population of the endangered least lettuce *Lactuca saligna*, and also supports several nationally scarce plants, including bulbous foxtail *Alopecurus bulbosus*, slender hare's-ear *Bupleurum tenuissimum*, divided sedge *Carex divisa*, saltmarsh goosefoot *Chenopodium chenopodioides*, sea barley *Hordeum marinum*, golden samphire *Inula crithmoides*, annual beard grass *Polypogon monspeliensis*, Borrer's saltmarsh-grass *Puccinellia fasciculata*, stiff saltmarsh-grass *P. rupestris*, one-flowered glasswort *Salicornia pusilla*, clustered clover *Trifolium glomeratum*, sea clover *T. squamosum*, narrow-leaved eelgrass *Zostera angustifolia* and dwarf eelgrass *Z. noltei*.

22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in **12**. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Birds

Species currently occurring at levels of national importance:

Species with peak counts in spring/autumn:

Little grebe , *Tachybaptus ruficollis ruficollis*, Europe to E Urals, NW Africa	251 individuals, representing an average of 3.2% of the GB population (5 year peak mean 1998/9-2002/3)
Little egret , *Egretta garzetta*, West Mediterranean	54 individuals, representing an average of 3.2% of the GB population (5 year peak mean 1998/9-2002/3)
Ruff , *Philomachus pugnax*, Europe/W Africa	23 individuals, representing an average of 3.2% of the GB population (5 year peak mean 1998/9-2002/3)
Common greenshank , *Tringa nebularia*, Europe/W Africa	38 individuals, representing an average of 6.3% of the GB population (5 year peak mean 1998/9-2002/3)

Species with peak counts in winter:

Common shelduck , *Tadorna tadorna*, NW Europe	1238 individuals, representing an average of 1.5% of the GB population (5 year peak mean 1998/9-2002/3)
Gadwall , *Anas strepera strepera*, NW Europe	359 individuals, representing an average of 2% of the GB population (5 year peak mean 1998/9-2002/3)
Northern shoveler , *Anas clypeata*, NW & C Europe	288 individuals, representing an average of 1.9% of the GB population (5 year peak mean 1998/9-2002/3)
Water rail , *Rallus aquaticus*, Europe	6 individuals, representing an average of 1.3% of the GB population (5 year peak mean 1998/9-2002/3)
Pied avocet , *Recurvirostra avosetta*, Europe/Northwest Africa	607 individuals, representing an average of 17.8% of the GB population (5 year peak mean 1998/9-2002/3)
Spotted redshank , *Tringa erythropus*, Europe/W Africa	6 individuals, representing an average of 4.4% of the GB population (5 year peak mean 1998/9-2002/3)

Species Information

Nationally important species occurring on the site:

Invertebrates:

The endangered species *Bagous longitarsis* occurs on the site.

The following vulnerable species occur on the site: a groundbug *Henestaris halophilus*, a weevil *Bagous cylindrus*, a ground beetle *Polystichus connexus*, a cranefly *Erioptera bivittata*, a cranefly *Limnophila pictipennis*, a horse fly *Hybomitra expollicata*, a hoverfly *Lejops vittata*, a dancefly *Poecilobothrus ducalis*, a snail-killing fly *Pteromicra leucopeza*, a solitary wasp *Philanthus triangulum* and a damselfly *Lestes dryas*.

The following rare species occur on the site: a ground beetle *Anisodactylus poeciloides*, the water beetles *Aulacochthebius exaratus, Berosus fulvus, Cercyon bifenestratus, Hydrochus elongatus, H. ignicollis, Ochthebius exaratus* and *Hydrophilus piceus*, a beetle *Malachius vulneratus*, a rove beetle *Philonthus punctus*, a fungus beetle *Telmatophilus brevicollis*, a fly *Campsicnemus magius*, a horsefly *Haematopota bigoti*, a soldier fly *Stratiomys longicornis* and a spider *Baryphyma duffeyi*.

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23. Social and cultural values:

Describe if the site has any general social and/or cultural values e.g. fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

Aesthetic
Archaeological/historical site
Environmental education/ interpretation
Fisheries production
Livestock grazing
Non-consumptive recreation
Scientific research
Sport fishing
Sport hunting
Tourism
Transportation/navigation

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning? No

If Yes, describe this importance under one or more of the following categories:

i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:

ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:

iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:

iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

24. Land tenure/ownership:

Ownership category	On-site	Off-site
Non-governmental organisation (NGO)	+	+
Local authority, municipality etc.	+	+
Private	+	+
Public/communal	+	

25. Current land (including water) use:

Activity	On-site	Off-site
Nature conservation	+	+
Tourism	+	+
Recreation	+	+
Current scientific research	+	+
Fishing: commercial	+	
Fishing: recreational/sport	+	
Gathering of shellfish	+	
Bait collection	+	
Arable agriculture (unspecified)		+
Permanent arable agriculture		+
Livestock watering hole/pond	+	+
Grazing (unspecified)	+	+
Permanent pastoral agriculture	+	+
Hunting: recreational/sport	+	
Industrial water supply		+
Industry		+
Sewage treatment/disposal	+	+
Harbour/port	+	+
Flood control	+	
Transport route	+	+
Urban development		+
Military activities	+	

26. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

Explanation of reporting category:

1. *Those factors that are still operating, but it is unclear if they are under control, as there is a lag in showing the management or regulatory regime to be successful.*
2. *Those factors that are not currently being managed, or where the regulatory regime appears to have been ineffective so far.*

NA = Not Applicable because no factors have been reported.

Adverse Factor Category	Reporting Category	Description of the problem (Newly reported Factors only)	On-Site	Off-Site	Major Impact?
Dredging	1		+	+	+
Erosion	2		+		+
Eutrophication	2	Studies by the Environment Agency indicate that the waters in the Thames estuary are hyper-nutrified for nitrogen and phosphorus.	+	+	+
General disturbance from human activities	1		+		+

For category 2 factors only.
What measures have been taken / are planned / regulatory processes invoked, to mitigate the effect of these factors?
Erosion - The North Kent Coastal Habitat Management Plan (CHaMP) has been produced. The Environment Agency is producing a Flood Defence Strategy for the Thames (Thames 2100) and decisions on future flood risk management will need to take into account the effects on features within the designated sites.
Studies of sediment transport and hydrodynamics within Thames estuary. Investigation of beneficial use of dredgings for mudflat recharge and creation of compensatory habitat.

Eutrophication - Water quality and sources of nutrient inputs are subject to further investigation by the Environment Agency as part of the Agency's review of consents under the Habitats Regulations. Stage 3 of the Review of Consents (appropriate assessment) is scheduled for completion by March 2006, at which point any consented discharges having an adverse effect on site integrity will be identified.

Is the site subject to adverse ecological change? YES

27. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

Conservation measure	On-site	Off-site
Site/ Area of Special Scientific Interest (SSSI/ASSI)	+	
Special Protection Area (SPA)	+	

Land owned by a non-governmental organisation for nature conservation	+	+
Management agreement	+	
Site management statement/plan implemented	+	
Environmentally Sensitive Area (ESA)	+	+

b) Describe any other current management practices:
The management of Ramsar sites in the UK is determined by either a formal management plan or through other management planning processes, and is overseen by the relevant statutory conservation agency. Details of the precise management practises are given in these documents.

28. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

No information available

29. Current scientific research and facilities:

e.g. details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

Numbers of migratory and wintering wildfowl and waders are monitored annually as part of the national Wetland Birds Survey (WeBS) organised by the British Trust for Ornithology, Wildfowl and Wetlands Trust, the Royal Society for the Protection of Birds and the Joint Nature Conservation Committee.
Numbers of breeding waders have been monitored through the BTO/RSPB/English Nature/Defra survey Breeding Waders of Wet Meadows (2002).
Botanical surveys of vegetation of sea wall embankments and grazing marsh ditches have been carried out.
The distribution and extent of saltmarsh habitat has been mapped - North Kent Marshes Saltmarsh Survey (2002) (Blair-Myres 2003)
The RSPB monitors various species groups on its reserves within the site

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitor centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

The RSPB manages a network of reserves within and adjacent to the site, which are promoted locally through existing community initiatives, and more widely through publications and via the internet. The site forms part of proposals for a north Kent 'Regional Park', being promoted to balance development in Kent Thameside (part of the Thames Gateway growth area). The Management Guidance for the Thames Estuary aims to increase awareness of conservation and is promoted by the Thames Estuary Partnership. The Thames Estuary Partnership has also produced the Tidal Thames Habitat Action Plan to raise awareness of and address biodiversity issues.

31. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

Yachting, angling, wildfowling, jet-skiing, water-skiing and birdwatching. Bird watching occurs throughout the year and wildfowling is restricted to the period September to February. The remaining activities occur year-round but are more prevalent in the summer months. Disturbance from these activities is a current issue but is being addressed through further research, negotiation and information dissemination.

32. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept. of Agriculture/Dept. of Environment, etc.

Head, Natura 2000 and Ramsar Team, Department for Environment, Food and Rural Affairs, European Wildlife Division, Zone 1/07, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6EB

EC Directive 79/409 on the Conservation of Wild Birds: Special Protection Area (SPA)

Name: Lee Valley

Unitary Authority/County: Essex, Hertfordshire, London Borough of Haringey and London Borough of Waltham Forest.

Consultation proposal: Amwell Quarry Site of Special Scientific Interest (SSSI), Rye Meads SSSI, Turnford & Cheshunt Pits SSSI and Walthamstow Reservoirs SSSI have been recommended as a Special Protection Area because of the site's European ornithological interest.

The Lee Valley SPA comprises a series of embanked water supply reservoirs, sewage treatment lagoons and former gravel pits that display a range of man-made and semi-natural wetland and valley bottom habitats.

Boundary of SPA: The SPA boundary is coincident with the above SSSI boundaries. See SPA map for further detail.

Size of SPA: The SPA covers an area of 447.87 ha.

European ornithological interest of SPA: The SPA is of European importance because:

a) the site qualifies under **article 4.1** of the Directive (79/409/EEC) as it is used regularly by 1% or more of the Great Britain population of a species listed on Annex I, in any season:

Annex I species	5 year peak mean 1992/93 - 1996/97	% GB population
Bittern *Botaurus stellaris*	6 individuals - wintering	6%

b) the site qualifies under **article 4.2** of the Directive (79/409/EEC) as it is used regularly by 1% or more of the biogeographical populations of the following regularly occurring migratory species (other than those listed on Annex I), in any season:

Migratory species	5 year peak mean 1993/94 -1997/98	% of population
Shoveler *Anas clypeata*	406 individuals - wintering	1.0% NW/Central Europe
Gadwall *Anas strepera*	456 individuals - wintering	1.5% NW Europe

Bird figures from: Wetland Bird Survey (WeBS) database.

Non-qualifying species of interest
In addition, the site supports nationally important numbers of Cormorant *Phalacrocorax carbo*, Great Crested Grebe *Podiceps cristatus*, Tufted Duck *Aythya fuligula*, Pochard *Aythya ferina* and Grey Heron *Ardea cinerea*.

Status of SPA
Lee Valley was classified as a Special Protection Area on 22 September 2000.

ENGLISH NATURE

Lee Valley SPA UK9012111
Compilation date: September 2000 Version: 1.2
Classification citation Page 1 of 1

Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.

2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.

3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

1. Name and address of the compiler of this form:

FOR OFFICE USE ONLY.
DD MM YY

Designation date | Site Reference Number

Joint Nature Conservation Committee
Monkstone House
City Road
Peterborough
Cambridgeshire PE1 1JY
UK
Telephone/Fax: +44 (0)1733 – 562 626 / +44 (0)1733 – 555 948
Email: RIS@JNCC.gov.uk

2. Date this sheet was completed/updated:
Designated: 22 September 2000

3. Country:
UK (England)

4. Name of the Ramsar site:
Lee Valley

5. Designation of new Ramsar site or update of existing site:

This RIS is for: Updated information on an existing Ramsar site

6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary and area:

** Important note: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

7. Map of site included:

Refer to Annex III of the *Explanatory Notes and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:

i) **hard copy** (required for inclusion of site in the Ramsar List): *yes* ✔ -or- *no* ☐;
ii) **an electronic format** (e.g. a JPEG or ArcView image) Yes
iii) **a GIS file providing geo-referenced site boundary vectors and attribute tables** *yes* ✔ -or- *no* ☐;

b) Describe briefly the type of boundary delineation applied:

e.g. the boundary is the same as an existing protected area (nature reserve, national park etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The site boundary is the same as, or falls within, an existing protected area.

For precise boundary details, please refer to paper map provided at designation

8. Geographical coordinates (latitude/longitude):

51 34 51 N 00 02 58 W

9. General location:

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

The Lee Valley site comprises four SSSIs spaced along the valley from just downstream of Ware in Hertfordshire to Finsbury Park in London, a total distance of about 24 km. The whole site is contained within the Lee Valley Regional Park.

Administrative region: Essex; Greater London; Hertfordshire

10. Elevation (average and/or max. & min.) (metres): **11. Area** (hectares): 447.87

Min. 10
Max. 29
Mean 20

12. General overview of the site:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

The Lee Valley comprises a series of embanked water supply reservoirs, sewage treatment lagoons and former gravel pits along approximately 24 km of the valley. These waterbodies support internationally important numbers of wintering gadwall and shoveler and nationally important numbers of several other bird species.

The site also contains a range of wetland and valley bottom habitats, both man-made and semi-natural, which support a diverse range of wetland fauna and flora.

13. Ramsar Criteria:

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

2, 6

14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Ramsar Criterion 2

The site supports the nationally scarce plant species whorled water-milfoil *Myriophyllum verticillatum* and the rare or vulnerable invertebrate *Micronecta minutissima* (a water-boatman).

Ramsar criterion 6 – species/populations occurring at levels of international importance.

Qualifying Species/populations (as identified at designation):

Species with peak counts in spring/autumn:

Northern shoveler , *Anas clypeata*, NW & C Europe	287 individuals, representing an average of 1.9% of the GB population (5 year peak mean 1998/9-2002/3)

Species with peak counts in winter:

Gadwall , *Anas strepera strepera*, NW Europe	445 individuals, representing an average of 2.6% of the GB population (5 year peak mean 1998/9-2002/3)

Contemporary data and information on waterbird trends at this site and their regional (sub-national) and national contexts can be found in the Wetland Bird Survey report, which is updated annually. See www.bto.org/survey/webs/webs-alerts-index.htm.

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15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:

Atlantic

b) biogeographic regionalisation scheme (include reference citation):

Council Directive 92/43/EEC

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16. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

Soil & geology	neutral, mud, clay, alluvium, nutrient-rich, gravel
Geomorphology and landscape	lowland, valley, floodplain
Nutrient status	highly eutrophic
pH	circumneutral
Salinity	fresh
Soil	no information
Water permanence	usually permanent
Summary of main climatic features	Annual averages (Greenwich, 1971–2000) (www.metoffice.com/climate/uk/averages/19712000/sites/greenwich.html) Max. daily temperature: 14.8° C Min. daily temperature: 7.2° C Days of air frost: 29.1 Rainfall: 583.6 mm Hrs. of sunshine: 1461.0

General description of the Physical Features:

A series of wetlands and reservoirs occupy about 20 km of the Lee valley. The site comprises embanked water supply reservoirs, sewage treatment lagoons and former gravel pits that support a range of man-made, semi-natural and valley bottom habitats.

17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

A series of wetlands and reservoirs occupy about 20 km of the Lee valley. The site comprises embanked water supply reservoirs, sewage treatment lagoons and former gravel pits that support a range of man-made, semi-natural and valley bottom habitats.

18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Other, Maintenance of water quality (removal of nutrients), Water supply

19. Wetland types:

Human-made wetland, Inland wetland

Code	Name	% Area
7	Gravel / brick / clay pits	30
6	Reservoirs / barrages / dams	30
Other	Other	29
8	Sewage farms	7
U	Peatlands (including peat bogs swamps, fens)	4

20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

Open water, plus associated wetland habitats including reedbeds, fen grassland and woodland supporting a number of wetland plant and animal species including internationally important numbers of wintering wildfowl.

Ecosystem services

21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in **12**. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Nationally important species occurring on the site
Higher Plant
Myriophyllum verticillatum (nationally scarce)

Invasive non-natives:
Impatiens glandulifera, Fallopia japonica

22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in **12**. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Birds

Species currently occurring at levels of national importance:

Species with peak counts in spring/autumn:

Great cormorant , *Phalacrocorax carbo carbo*, NW Europe	419 individuals, representing an average of 1.8% of the GB population (5 year peak mean 1998/9-2002/3 - spring peak)
Tufted duck , *Aythya fuligula*, NW Europe	2081 individuals, representing an average of 2.3% of the GB population (5 year peak mean 1998/9-2002/3)
Common coot , *Fulica atra atra*, NW Europe	2032 individuals, representing an average of 1.1% of the GB population (5 year peak mean 1998/9-2002/3)

Species with peak counts in winter:

Great bittern , *Botaurus stellaris stellaris*, W Europe, NW Africa	1 individuals, representing an average of 1% of the GB population (5 year peak mean 1998/9-2002/3)
Smew , *Mergellus albellus*, NW & C Europe	14 individuals, representing an average of 3.7% of the GB population (5 year peak mean 1998/9-2002/3)
Water rail , *Rallus aquaticus*, Europe	17 individuals, representing an average of 3.7% of the GB population (5 year peak mean 1998/9-2002/3)

Species Information

Nationally important species occurring on the site
Invertebrate
Micronecta minutissima (RDB3)

Invasive non-native:
Mustela vison

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23. Social and cultural values:

Describe if the site has any general social and/or cultural values e.g. fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

Aesthetic
Environmental education/ interpretation
Non-consumptive recreation
Scientific research
Sport fishing
Tourism

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning? No

If Yes, describe this importance under one or more of the following categories:

i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:

ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:

iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:

iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

24. Land tenure/ownership:

Ownership category	On-site	Off-site
Non-governmental organisation (NGO)	+	+
Local authority, municipality etc.	+	+
Private	+	+
Other	+	+

25. Current land (including water) use:

Activity	On-site	Off-site
Nature conservation	+	+
Tourism	+	+
Recreation	+	+
Current scientific research	+	+
Fishing: recreational/sport	+	+
Freshwater aquaculture		+
Grazing (unspecified)		+
Industry		+
Sewage treatment/disposal	+	+
Flood control		+
Mineral exploration (excl. hydrocarbons)		+
Transport route		+
Domestic water supply	+	+
Urban development		+
Non-urbanised settlements		+

26. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

Explanation of reporting category:

1. *Those factors that are still operating, but it is unclear if they are under control, as there is a lag in showing the management or regulatory regime to be successful.*
2. *Those factors that are not currently being managed, or where the regulatory regime appears to have been ineffective so far.*

NA = Not Applicable because no factors have been reported.

Adverse Factor Category	Reporting Category	Description of the problem (Newly reported Factors only)	On-Site	Off-Site	Major Impact?
No factors reported	NA				

For category 2 factors only. What measures have been taken / are planned / regulatory processes invoked, to mitigate the effect of these factors?
Is the site subject to adverse ecological change? NO

27. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

Conservation measure	On-site	Off-site
Site/ Area of Special Scientific Interest (SSSI/ASSI)	+	+
Special Protection Area (SPA)	+	
Land owned by a non-governmental organisation for nature conservation	+	+
Site management statement/plan implemented	+	

b) Describe any other current management practices:
The management of Ramsar sites in the UK is determined by either a formal management plan or through other management planning processes, and is overseen by the relevant statutory conservation agency. Details of the precise management practises are given in these documents.

28. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

No information available

29. Current scientific research and facilities:

e.g. details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

- Wetland Bird Survey counts
- Various University of Hertfordshire projects
- Ongoing SSSI unit monitoring

- Rye Meads used for experimental study of fish predation by cormorants
- Monitoring of recently created reedbed at Rye Meads

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitor centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

Various activities organised by Lee Valley Regional Park Authority. Schools visits to Rye Meads RSPB reserve. Projects by University of Hertfordshire students. The Heritage Lottery Fund is considering a partnership bid for funds for a new visitor centre at Rye Meads.

31. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

The whole site is within the Lee Valley Regional Park, with a large area forming the River Lee Country Park. The whole site supports high levels of visitor pressure; principally for purposes of angling, walking, cycling and birdwatching; with boating on the adjacent canal. These activities are mostly well regulated and at current levels are not considered to threaten the interest (although they may reduce the potential for enhancing the interest).

32. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept. of Agriculture/Dept. of Environment, etc.

Head, Natura 2000 and Ramsar Team, Department for Environment, Food and Rural Affairs, European Wildlife Division, Zone 1/07, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6EB

33. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Site Designations Manager, English Nature, Sites and Surveillance Team, Northminster House, Northminster Road, Peterborough, PE1 1UA, UK

34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see **15** above), list full reference citation for the scheme.

Site-relevant references

Batten, LA, Bibby, CJ, Clement, P, Elliot, GD & Porter, RF (1990) *Red Data Birds in Britain. Action for rare, threatened and important species*. Poyser, London, for Nature Conservancy Council and Royal Society for the Protection of Birds

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Musgrove, AJ, Pollitt, MS, Hall, C, Hearn, RD, Holloway, SJ, Marshall, PE, Robinson, JA & Cranswick, PA (2001) *The Wetland Bird Survey 1999–2000: wildfowl and wader counts*. British Trust for Ornithology, Wildfowl and Wetlands Trust, Royal Society for the Protection of Birds & Joint Nature Conservation Committee, Slimbridge. www.wwt.org.uk/publications/default.asp?PubID=14

Rose, PM & Scott, DA (1997) *Waterfowl population estimates*. 2nd edn. Wetlands International, Wageningen (Wetlands International Publication, No. 44) www.wetlands.org/IWC/wpe2/WPE2-toc.htm

Stone, BH, Sears, J, Cranswick, PA, Gregory, RD, Gibbons, DW, Rehfisch, MM, Aebischer, NJ & Reid, JB (1997) Population estimates of birds in Britain and in the United Kingdom. *British Birds*, **90**(1), 1-22

Stroud, DA, Chambers, D, Cook, S, Buxton, N, Fraser, B, Clement, P, Lewis, P, McLean, I, Baker, H & Whitehead, S (eds.) (2001) *The UK SPA network: its scope and content*. Joint Nature Conservation Committee, Peterborough (3 vols.) www.jncc.gov.uk/UKSPA/default.htm

Stroud, DA, Mudge, GP & Pienkowski, MW (eds.) (1990) *Protecting internationally important bird sites: a review of the EEC Special Protection Area Network in Great Britain*. Nature Conservancy Council, Peterborough

Tucker, GM & Heath, MF (1994) *Birds in Europe: their conservation status*. BirdLife International, Cambridge (BirdLife Conservation Series, No. 3)

[1] The 2017 Regulations have been amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 to reflect the UK's exit from the EU, although these largely carried forward the provisions and terminology of the 2017 Regulations and do not fundamentally alter their interpretation. This report therefore primarily refers to the 2017 Regulations and (where appropriate for clarity) the relevant provisions of the Habitats Directive

[2] As noted, the 2019 amendment to the Habitats Regulations largely carried forward the provisions and terminology of the 2017 Regulations, and so the term 'European site' is currently retained and for all practical purposes the definition is essentially unchanged. European sites are therefore: any Special Area of Conservation (SAC) from the point at which the European Commission and the UK Government agreed the site as a 'Site of Community Importance' (SCI) (if this was before 31 Jan 2020); any classified Special Protection Area (SPA); and any candidate SAC (cSAC). However, the term is also commonly used when referring to potential SPAs (pSPAs), to which the provisions of Article 4(4) of Directive 2009/147/EC (the 'new wild birds directive') are applied; and to possible SACs (pSACs) and listed Ramsar Sites, to which the provisions of the Habitats Regulations are applied as a matter of Government policy (NPPF para. 181; TAN5 para. 5.1.3) when considering development proposals that may affect them. "European site" is therefore used in this document in its broadest sense, as an umbrella term for all of the above designated sites. The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 does not offer a direct alternative to "European site" but uses the term 'National Site Network' in place of 'Natura 2000'. The NPPF in England has adopted the term 'Habitats site' to refer collectively to those sites defined by Regulation 8, and this term is being frequently used by Natural England. As such, 'Habitats Site' has been adopted within this document.

[3] European offshore marine sites' are defined by Regulation 18 of The Conservation of Offshore Marine Habitats and Species Regulations 2017; these regulations cover waters (and hence sites) over 12 nautical miles from the coast.

[4] DEFRA (2023) National Policy Statement for Water Resource Infrastructure

[5] Cutts N, Hemingway K and Spencer J (2013) The Waterbird Disturbance Mitigation Toolkit Informing Estuarine Planning and Construction Projects. Produced by the Institute of Estuarine and Coastal Studies (IECS). Version 3.2.

[6] Environment Agency (2013) Bird Disturbance from Flood and Coastal Risk Management Construction Activities. Overarching Interpretive Summary Report. Prepared by Cascade Consulting and Institute of Estuarine and Coastal Studies

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